DOMESTIC ENGINEERING

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Cut out; frame neatly; put in show window; change weekly.

DEPRECIATION OF PLANT.

Every manufacturer charges off annually a sum of from five to ten per cent for depreciation of plant. This is done so that machinery and fixtures may be replaced as worn out without giving the plant a fictitious value. Every residence and its equipment depreciates constantly, but as it is not usually the subject of bookkeeping, the constant expenditure of money to maintain its efficiency is not noticed. So far as the plumbing and heating plant is concerned, these items of depreciation are reduced to a minimum by the original installation of good goods, bearing the name of the maker, and subject to his guaranty as to satisfactory service.

The Courts and the Corporation

The Standard Oil decision has received generous notice from the daily press, many of its members being ready enough to sensationalize it in order to inflame the public mind against corporations on the one hand, or against the courts on the other hand, as their affairs may be directed by demagogues or capitalists. It seems almost hopeless to expect fair, sane or temperate treatment of a great public question by the average daily paper. In a recent gathering at which the writer was present, Daniel Frohmann, the astute dramatic manager, said that the daily press had so little influence with the public in these days that it was nearly a negligible quantity. He cited as an example the recent election of a man as mayor of New York who was opposed by every newspaper in the metropolis. It has been illustrated again in Chicago by the election to Congress of a man who was bitterly fought by all but one daily newspaper in that city. It could have been assumed that the daily press would present a biassed interpretation of the court's decision. We are not surprised to see published a long list of organizations of capital which are called "the big trusts" and reported to be "in danger" as a result of the Standard Oil decision. Among the names of such members of "the big trusts" are several which manufacture articles used in domestic engineering work.

The daily press may be quite ignored by the reader who desires to form an even approximately correct opinion of this celebrated case; and it is very important that a correct opinion should be formed. The American citizen is essentially a man who desires to see fair play, and in this most important case it is well to be guided only by facts. The decision was from the Federal Circuit Court of Appeals at St. Louis, the case having been appealed by the Standard Oil Company after an adverse decision in a lower court. The essence of the decision is this:

"If the necessary effect of a contract, combination or conspiracy is to stifle or directly and substantially to restrict free competition among the states or with foreign nations, it is a contract, combination or conspiracy in restraint of that trade and violates the law."

The court found the Standard Oil Company was such a combination, was existing in violation of law, and ordered its dissolution.

It may be assumed that the decision will be appealed to the Supreme Court of the United States, which has the respect and confidence of the people, and if it is called upon to make a decision on appeal it may be safely believed that, free from passion and prejudice, the law will be correctly interpretated. When this decision is handed down it will establish the rights of capital, of labor and of organized society, and do much

to clarify and settle business conditions, which have been much unsettled by recent well-meant attempts at corrective legislation and administration.

The corporation is not an enemy to the people simply because it is a corporation. It is a great friend to business if rightly used. The partnership or privately managed business is subject to destruction by the incapacity of its owners. To such businesses the corporate form of organization offers a needed aid. Officers or members of a corporation may die, but the corporation lives on, permitting a business to proceed indefinitely. When a business becomes so large that capital at the command of its owner is too limited to carry it on advantageously, the corporate form offers a needed solution of the problem. By becoming stockholders others are permitted to furnish capital in small or large amounts, and thus many large enterprises are possible which could not be carried on without corporations.

Capital invested in corporate forms of business is entitled to as great respect and protection as that used privately. So long as corporations obey the laws they should be encouraged. When they are defiant of law they should be punished.

In either case let justice be done by the nation and by individuals as well. **Jno. K. Allen.**

Some Heating Questions—I

A FEW PRACTICAL QUESTIONS FOR BOTH THE MASTER AND HIS CUSTOMER.

By Charles B. Starkey.

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When a man has taken out a license to do a plumbing or heating business and has moved into a building more or less properly adjusted to the purpose and secured the necessary number of journeymen, several questions will naturally arise, and if he is doing only the heating branch it will soon be seen that this work does not always flow toward the shop in a steady stream of orders.

A man who is thoroughly honest with himself and who possesses the disposition to study results will soon arrive at the conclusion that this business must be run upon some kind of system and that the sooner he finds something of the sort, the better it will be in every way.

The writer of these articles has urged repeatedly that greater attention be devoted to specialties, methods, shop arrangement and system to the end that the business be not only increased, but placed on the level that it should occupy when compared with other lines of industry.

There are several different ways in which heating business comes to the shop. Among the principal are blue prints which are submitted for bids. Another manner is the business which comes from advertising, a third source is those jobs which the master gets out and digs up himself. It is very seldom that a person comes in at the door leading a friend by the coat collar and forces him to buy a job "like his." It sometimes occurs but the shock has nearly killed several masters in the business.

When a party is found who is suspected of having intentions to consider the proposition of heating his (or her) dwelling by steam or hot water it is an unwise proceeding to spring the cost of the apparatus until about the last thing.

"What six hundred dollars to heat my house?" says Mr. Jones, and the fat is in the fire immediately.

Jones, by the way, had not been posted on several different points and that $600 looked bigger than a mountain to him. Sure he would kick. Who would not? It's human nature. Now if Jones had been engaged in a line of conversation which would have brought out the good and bad points of different kinds of heating apparatus leading up to the particular kind which was suited to his residence he might have been in a different mood. Why not take him around his own house to the various rooms and point out from the catalogue the right kind of a radiator for that special spot. Get's him rather interested, you know, just seeing what he MIGHT HAVE IF he felt that he needed it. That's the master's business—TO MAKE JONES FEEL THAT HE CAN'T AFFORD TO GET ALONG WITHOUT THIS HEATING APPARATUS ANY LONGER. That $600 would do Jones more good spent for a heating apparatus so that he could derive some comfort from it, than it would invested in a monument to hold Jones down after he had passed on. Life is short and opportunities are passing from us every day.

Now, there are many points of convenience about a hot water or steam plant that the average man does not realize unless they are mentioned. With the large number of house heating plants installed in the country it is surprising the amount of ignorance that exists in this respect, but it is a fact all the same. "Why I never thought of that," remarks Mrs. Robinson when you tell her how warm the floors will be in a house so heated. Be sure and explain that point thoroughly. Show the convenience of the apparatus and do it right, for this is a strong point in the general argument, and then pass

on to the general safety of the apparatus. Now, many inexperienced people think that it takes a person with a good knowledge of engineering to run a house heating plant. This is not so. I know of many such plants that are tended by boys not fourteen years of age.

Convince Jones or Mrs. Robinson that there is not as much danger in running a heating plant in his or her house, as there would be in taking care of an ordinary coal stove and you certainly do not have to stretch the truth in any way to prove this point most convincingly.

The suspected investors are now in a frame of mind where it might be advisable to introduce some evidence with regard to costs; but begin easily. The point comes up how much it will cost to operate the apparatus for the winter.

They will probably say that "they *het* the house last winter on three tons of coal." That is a mistake (to say the least) and anyone knows it, but it would be a rash thing to flatly dispute the point.

One can express surprise at the fact and assume that Jones has a VERY warm house which it is easy, and would be a cinch to heat, and then gradually lead up to the point as to how many rooms Jones warmed in zero weather. Pinned down to actual facts Jones is bound to admit that he heated only about three or four rooms while the other six or eight were closed up.

Now it is easy to show that if Jones had attempted to run three or four coal stoves he would have burned anywhere from twelve to fifteen tons of coal to say nothing of the extra work, confusion and dirt in and around the house.

Right here one can show that a good steam plant would have done the work on from six to nine tons of coal, easily, and that it would have required attention only about once in each twelve hours, which point would have mighty serious consideration when servants are so scarce and haughty. There are many other good points that can be introduced at this stage before the final point is sprung, the general run of the conversation and opportunities will have to govern these minor details.

As to when the final cost is to be announced no one can tell exactly.

People are so different. Many want an answer at once, which is a difficult matter to arrive at unless one has a handy estimate sheet in one's pocket. It is preferable to make a second visit, after the job has been figured out in detail. This, however, does not always work as the customer sometimes changes his or her mind and backs out entirely.

I once sat up from eight in the evening until two A. M., with a most obstinate party, but I got the job signed and sealed before I left the house.

Now, some one will say right here, that a man cannot figure a job hastily and before the customer and give an accurate estimate.

To this I wish to say that you can if you have kept proper account of your business, and this is the way of it. Suppose you figure up the last ten or fifteen heating jobs that you have installed. Find out how much each job has cost per foot of radiation, strike the average and you will have what you can put the job in per foot of radiation. It is an easy and also not a difficult matter to find out how much radiation it will take to heat the house.

Suppose you find that it will take 600 feet of radiation and you also know that on your last ten jobs you had made money at 90 cents per foot. "Well, Mr. Jones, I will put in your job for $540." I am free to confess that this is not the most accurate method of giving an estimate, but where I knew my costs and profits, and where I felt sure that the customer would be lost unless I closed the deal at once I must say that I would do it in this manner rather than lose out entirely.

If Mrs. Robinson needs time to consider the matter before she gets the final figures you have left her several mighty good points upon which to consider and the chances are that her mind will be strongly inclined toward your final proposition when you call again in the course of a day or two to close the deal.

The Disposal of Sewage by Irrigation*

BY ROBERT H. ELLITHORPE

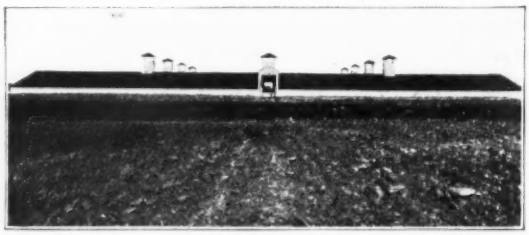
Inspector of Plumbing, Fresno, Cal., Member A. S. I. P. S. E.

At the request of Mr. Chas. B. Ball I have prepared the following short paper upon the disposal of sewage as it is handled in Fresno, Cal. I will endeavor to tell you of some of the conditions existing in the system of our sewers in Fresno a few years ago and how they are today. First—Fresno has a population of about 30,000, is the geographical center of the State of California, is 209 miles southeast of San Francisco, in the San Joaquin River Valley. We have a large productive country surrounding us devoted to fruit growing,

*Read at the fourth annual meeting of the American Society of Inspectors of Plumbing and Sanitary Engineers, held in Omaha, Nebr., on February 8-10, 1909.

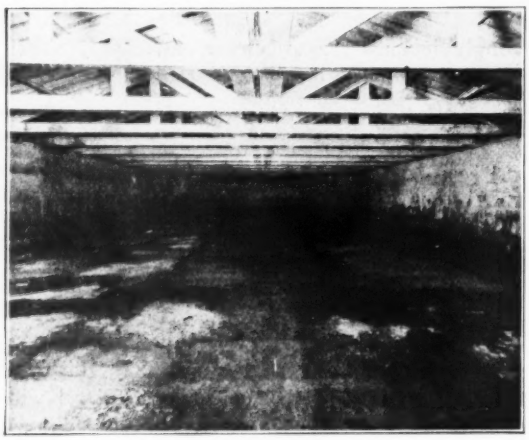
the raising of vegetables and alfalfa. In our country of little rain, (so necessary to the proper curing of our crops), we resort to irrigation and give the plant life water when ever it needs it.

Previous to Jan., 1908, our out-fall sewer used to dump the raw material on the ranches about seven miles southwest of the city, the owner of



West Side of Tanks Looking Through Grit Chamber.

which was paid $150 per month for taking care of same; he used what he wanted for irrigation and left the rest to find a level at any old place it could in his pasture; the condition became so bad that the people in this vicinity united and brought suit against the city for maintaining a nuisance and proved their case which was settled by the city putting in the present disposal plant as a part of the present sewer system.



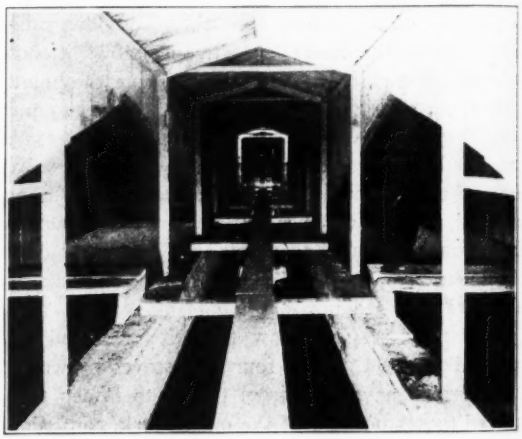
Inlet to Tank.

Water for irrigation is of great value in the San Joaquin Valley and the water from our sewers is of as much more value as its fertilizing qualities. The amount of water flowing to our sewer farm is about 5,032,271.60 gallons per day.

The utilization of this sewage for the purpose of irrigation without becoming a nuisance governed Mr. Geo. L. Hoxie the city engineer in the preparation of the plans of our septic tanks and sewer farm. (To him I am much indebted for the information in this article.)

My first experience with a disposal plant was at Echota, N. Y., a suburb of Niagara Falls, N. Y. This place was built for the employees of the Cataract Construction Company about three miles above the falls and as they wished to empty the sewage into a small creek and from there into the Niagara river above the water supply for that city there had to be some purification. This was accomplished by the use of chemicals, but I was unable to watch the results accomplished there.

The modern method for purification of sewage by bacterial action have been arrived at by trials and experiments in filteration and discoveries of



Showing Grit Chamber Inlets to Tanks. Also Man Standing on Matt.

scientists. Some of these discoveries were made as early as 1839 by Schwan and Schultze, "that micro-organisms are the true agents of decomposition." Another important discovery made by Schloesing and Muntz in 1877, "that nitrification, or oxidation of ammonia to nitric acid, is due to the activity of bacteria," formed the basis for an absolutely new and simple method, a method in which the processes of nature were employed instead of the chemical or mechanical.

In the purification of sewage the changes which take place may be said to be the following:

First—The organic matter decays through the action of bacteria with the result that ammonia is liberated.

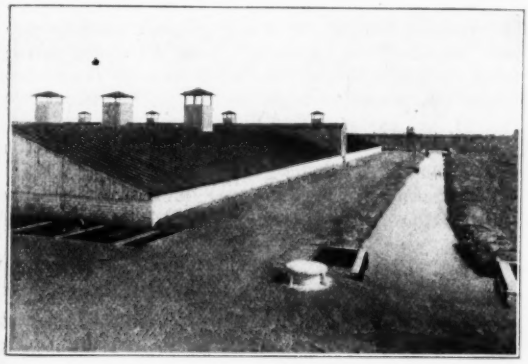
Second—The ammonia is then oxidized by the action of nitrifying micro-organisms, with the re-

sult that first nitrous and then nitric acid is formed, these acids react on bases always present and form nitrites and nitriates. Some of the hydrogen present in the sewage is liberated in the form of marsh gas, and some converted into water; nitrogen is also liberated. The carbon of the organic matter is converted into carbonic acid gas.

Thus the foul and complex matter sewage is resolved into harmless and inoffensive components.

The object of sewage purification is to produce an effluent free from putrescible matter and containing only inorganic and mineral substances. It is very important, also, before considering the practical side to grasp the fact that bacteria necessary for the purification of sewage already exists in the sewage. Anerobic action takes place in properly constructed septic tanks.

A tract of 812 acres of land was purchased and

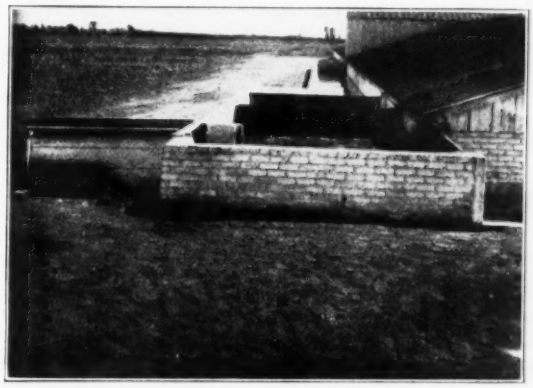


Inlet to Main Ditch.

the old out-fall extended to it and a second 24" vitrified out-fall was built to provide for the increase in flow from the system.

The out-fall is on a grade of 3.3′ to the mile and terminates in a red-wood box sewer 2′x4′ that extends for 3,100′ across the farm property. From this box the sewage goes through the oil traps, a considerable amount of oil accidentally is allowed to escape into the sewers from the railroad roundhouses, lighting plant and canneries, etc., and it is removed at this point in the system. As much as two barrels has been caught in a day but this amount is unusual. The trap is 10′x10′x6′. From this point the sewage runs along the side of the tank about 80′ where it enters the grit chamber which is 4′x5′x4′ and extends from one side of the tank to the other with a gate at the far side for the purpose of cleansing the chamber. When cleansing this part, the sewage runs in an open ditch a short distance to a cross ditch from which it is distributed onto a sand filter bed that is subdrained. This chamber is cleaned twice a week.

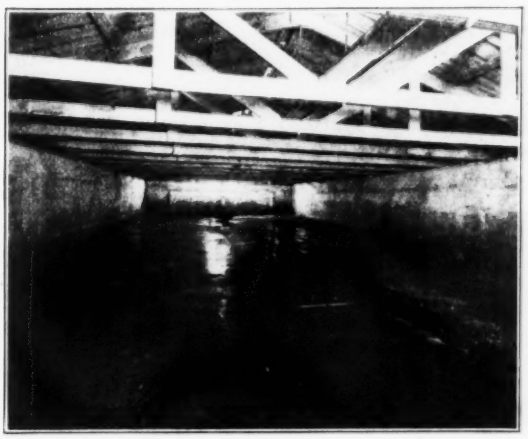
On each side of the grit chamber are four tanks 36′x90′x8′ built of brick laid in cement. Each compartment is covered by a roof to exclude light, with



Oil Trap.

a ventilator over each, also one over grit chamber. The whole tank covers a space 150′x200′.

The sewage enters each compartment through

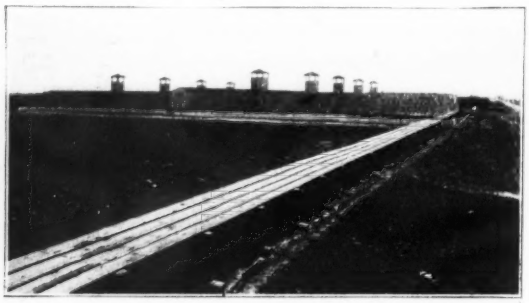


Outlet End of Tank.

three 8"x10" Ys set upright on the floor so as to maintain a depth of 2′ in the grit chamber, the 8" branch extending through the wall to within 1′ and 6" of the bottom of the tank. The outlet of each compartment consists of three L shaped 8" pipes extending to within 2′ of the bottom in order to draw off the treated liquid between the sludge

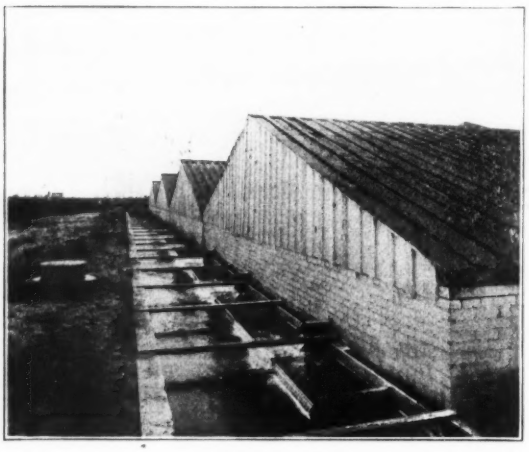
on the bottom and the matt on the top. There is also a flush gate at the bottom of each compartment for the removal of sludge.

Any tank can be taken out of commission by placing taper plugs or sleeves in the three 10" Ys thus preventing the flow to enter this compartment. The outlet pipes discharge over an aerating weir into a box drain along each end of the tanks from which it is carried to main ditch and distributed about the farm.



Box Sewer and Septic Tank.

At the present time the farm is under municipal supervision, Geo. L. Hoxie, C. E., having general supervision, B. E. Cronkite, Asst. C. E., being in direct charge.



Aerating Weir.

Last year 240 acres was planted to vines and a like number of acres will be planted to alfalfa and vines this year and possibly a small tract to eucalyptus trees. This, however, is not considered the best crop for the disposal of sewage as the trees exclude sunlight and lessen evaporation.

The best crop for this purpose in Fresno is alfalfa, the sewage being applied after each cutting, of which there are five.

A Few Words on Formulas

By Phoenix.

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When the average plumber takes up a book written on the subject of the craft and turns the pages until he strikes a formula, he generally hits a snag and his interest disappears at once. Now in all my articles, so far, I have persistently avoided the use of anything of this kind, because I believe that the shop has other business, generally, than devoting time to solving complex problems by means of algebra and geometry, but nevertheless I desire to say a few words on the subject and trust that many of my friends will bear with me for I promise not to do this trick very often.

I trust that I may also be pardoned by anybody else for venturing into the realm of that much discussed subject, "formulas," or "formulæ." I do not intend delving exhaustively into this branch, but I desire to show where one or two simple formulas are not so deep nor as terrible as they appear upon first inspection.

These formulas are not original and they are taken from well known works pertaining to the craft.

The first has to do with the expansion of pipes and the rule, expressed as a formula looks like this:

$$e = \frac{lh}{c}$$

The plumber takes one look at those letters and gives up the struggle at once right there. Now the rule in this case says. "Multiply the length of pipe *in inches* by the number of degrees Fahrenheit it is heated or cooled, and divide the product by the co-efficient of expansion for the kind of pipe used." There remain several points yet to be considered.

What is that expansion in the pipe? This, of course, the author says, depends upon the degree to which the pipes are heated and the material of which they are composed, and states that within ordinary ranges of temperature cast iron pipe varies $\frac{1}{162{,}000}$ of its length for each degree, Fhr., it may be heated or cooled, while brass pipe varies $\frac{1}{100{,}000}$ for each degree, and that wrought iron pipe varies $\frac{1}{1{,}500{,}000}$ for each degree.

Now glance at the rule and contemplate the formula and the light will begin to dawn.

If we proceed with the author (having stuck to it thus far) and consider the letters as representing different parts of the problem as follows: Let l represent the length of pipe in inches, and h represent the degrees Fahr. the

pipe is heated or cooled; while e represents the expansion of the pipe in inches; and c represents the co-efficient of expansion which is $\frac{1}{100,000}$ for brass pipe; $\frac{1}{162,000}$ for cast iron pipe and $\frac{1}{1,500,000}$ for wrought iron pipe.

Does the formula $e=\frac{lh}{c}$ look any more reasonable now or is it about as clear as Missouri river water? An example is given so let us analyze it and see how it works out.

This is the example or question: What will be the length of the expansion of a wrought iron pipe one hundred feet long when heated from 60 to 212 degrees temperature?

Remember that the letter e in the equation represents this length of expansion, which is yet to be found, while the 100 feet is the length of the pipe that is expected to expand; while the number of degrees of heat put into the pipe, so to speak, is found by subtracting 60 from 212, which gives us 152. Now 100 feet reduced to inches gives 1200 which multiplied by 152 gives us 182,400. Upon dividing 182,400 by 1,500,000 we have 0.1216 which is the expansion sought. The example with figures cast into the shape of a formula would look like this:

Length$=\frac{100\times12\times152}{1,500,000}$ and the formula looked like this:

$e=\frac{lh}{c}$

Now why not take this problem and consider it for awhile. It is given to be of assistance when one reads a book in which formulas may happen to occur.

I wish to show that the following rule is very simple and when one once understands it the little rule expressed in this manner is a mighty convenient thing to paste in your pocket memorandum, or in some place where it may be easily seen.

It is a rule not original for finding the amount of steam radiation required in any room and works out very accurately and may be depended upon.

This is the way I have stated it:

$$\frac{CC}{2/55} + G + \frac{EW\ (-G)}{4} \div 4 = \text{Steam Radiation.}$$

In especially cold climates 3/55 may be used in the place of 2/55. Now to one not conversant with this form of stating a heating rule, those letters so arranged may look somewhat puzzling, but let me see how it works out after being taken to pieces and examined. I never had anybody to do this for me and it is not the easiest thing to sit down to a book and dig these things out for yourself, but I only hope that this may be of assistance to some one who may read these lines. The first part of the formula, $\frac{CC}{2/55}$ means to find out how much two-fifty-fifths of the cubic contents of any room may be to which will be added the number of square feet of glass in the room. To these two items will be added one-fourth of the area of exposed wall (with the glass subtracted before dividing by four, otherwise one would be allowing for the glass also after having figured it previously.)

These three items added together and divided by four will give the amount of radiation for any room. Suppose we have a room that is eighteen by twenty-four feet and ten feet in height. This is not an unusual size in many places. Now in this room there are three windows two of which are 3 by 6 feet and the remaining window is four by five feet. In that room there are 4,320 cubic feet of space and two fifty-fifths of this (neglecting a slight fraction) would be 157.

The glass surface amounts to 56 feet, and the exposed amounts to 420—56, or 364 feet, which divided by 4 gives us 91. Then 157+56+91=304, which divided by 4 gives 76 feet or the required amount of radiation. It would be a trifle over 76 feet, but I have omitted carrying it down too fine.

Now the question may be asked by some readers why this explanation about formulas, so I will state one reason right here.

I chanced to be reading the questions and answers department of this paper a couple of weeks ago, and saw a discussion between two parties in which the technical man made a statement to the effect that practical men do not read but criticise and are afraid of equations and Unvin's in particular.

Now for the sake of argument, *for a moment*, we will admit that practical men do not read (but just the same many practical men do read).

What are they doing when they are not reading? *They are working.* They must work or else the business stops, and on every plumbing or heating job a man installs, there is something that turns out differently. **The shop man is performing experiments every day of his life and if he does not know, from actual observation, how the different forms of apparatus work,** then I don't know who does. Certainly it is to be regretted that there is the amount of feeling between the two classes that exists, for there are good points upon both sides of the question.

The man in the shop needs to read more because no man or one shop ever yet knew it all, while on the other hand, believe me, there are many, many points that the technical man can gain from those who work at the business daily.

The Penalty.

Judge—It seems to me that I have seen you before.

Prisoner—You have, Your Honor; I gave your daughter singing lessons.

Judge—Twenty years.

Useless Noises.

"Nothing lost here but the squeal," declared the pork packer. "Are you as economical in conducting your business."

"Just about," answered the visitor. "I'm a lumber manufacturer. Nothing wasted but the bark."—Pittsburg Post.

Ventilating Tunnels

Persons who have kept in touch with developments connected with the subway in New York city are aware of the difficulty the authorities have found in providing adequate ventilation, both for purity of the atmosphere as well as to keep the temperature at an agreeable point. The constructors of the Washington street tunnel seem to have met this problem successfully. Washington street is known as the busiest street in Boston and in it for about 6,100 feet is the third subway to be built in Boston. This street, possibly the best known street in that well-known city, is, like other Boston streets,

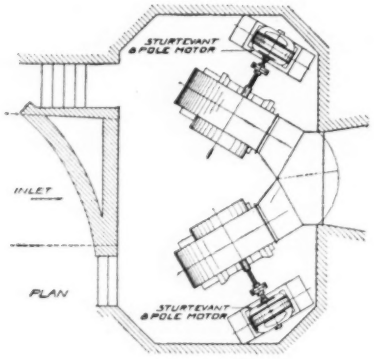


Fig. 1. Plan of fan chamber at La Grange street, showing location of motors and fans.

neither wide nor straight, nor is the street level, and the tunnel contains both of these characteristics. The top of the rails falls from sixteen to forty-three feet below the street surface, and at Adams Square, where the tunnel has to pass below the Boston subway, the rail is sixteen feet below the mean water in the harbor. Natural ventilation could not be depended upon to remove the foul

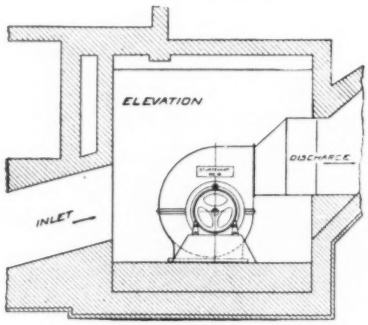


Fig. 2. Elevation of fan chamber at La Grange street.

air, which is brought in by the cars, being exhaled by passengers, and being fouled by the operation of motors. Consequently the method adopted was the Sturtevant fan system, which mechanically handles the air, removing the foul air at necessary places so that pure air may enter in its stead. To accomplish this ventilation the tunnel is divided into four sections and at about the middle of each of these sections the air is exhausted through fan chambers, in each of which two Sturtevant ventilating fans are located, as shown in plan in Figure 1, and in elevation in Figure 2. At each of these four ventilating centers the air in the tunnel enters a duct, which leads to the

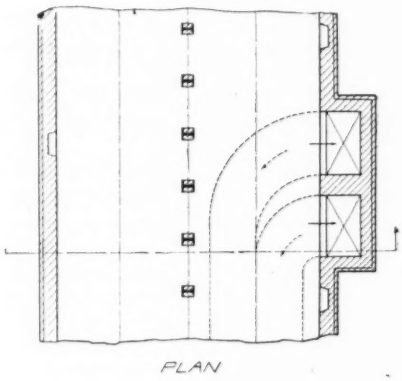


Fig. 3. Plan of tunnel at Eliot street.

nearest fan chamber. Fresh air is brought in at the portals at either end of the tunnel and at the station entrances, the suction created by the fans drawing the air from these entrances from both directions into the ducts and three into the fan chambers. These ducts are in some cases below the tunnel and in other instances

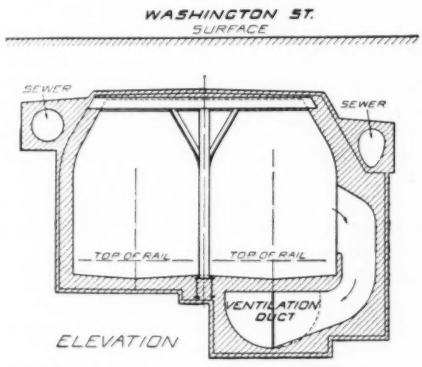


Fig. 4. Sectional view of tunnel, showing opening into air from tunnel at Eliot street.

above or at the side. They have a cross sectional area of at least forty feet and the air passes through them at a velocity of about one foot per second, which changes the air in each section of the tunnel at least three times per hour. Figs. 3 and 4 show a section and plan of tunnel at Elliot street, showing the opening into the air duct from the tunnel. The vitiated air has to be discharged at certain points by means of ducts in the tunnel, because the location of buildings made it impossible to discharge the

air at points where it was desired to take it from the tunnel; further it was not practicable to deliver the air through grated areas in the sidewalk on account of the large number of people passing in the day time. Hence the vitiated air was taken from the tunnel at desirable points and conveyed through ducts to the fan chambers located at the available points and then discharged. Figure 5 shows the section of the tunnel fifty-two feet south of Milk street, which is near the old South meeting house. Air enters at the station entrances at Summer street, Franklin street, the old South meeting house, Water street, and the old state house, at State street.

Figs. 6 and 7 show the fan chamber at Milk street and should be studied in connection with Figure 5. These fans discharge the vitiated air into the atmosphere, the fan chambers and chimneys or exits for foul air being located on what was formerly private ground. The fans used are of the multivane type and are eight in number, of the same size, delivering the same volume, provided the speed and maintained resistance are the same. The fans have a large volume and are capable of being run at high speed, and occupy comparatively little space. For the illustrations used, we are indebted to B. F. Sturtevant Company, Hyde Park, Mass.

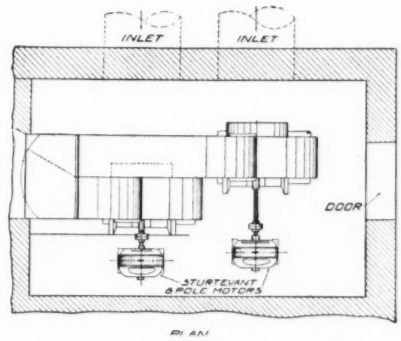


Fig. 5. Sectional view of Washington street tunnel fifty-two feet south of Milk street.

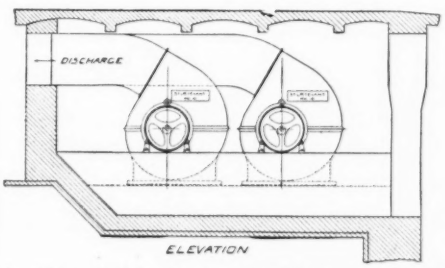


Fig. 6. Plan of fan chamber at Milk street. Should be studied in connection with Fig. 5.

HISTORY OF THE DISCONNECTION TRAP ON THE MAIN HOUSE DRAIN.

At a meeting of the Architectural Association of London held Nov. 5, Scott Moncrieff read a paper containing this interesting statement about the origin of the practice of disconnecting the house drain from the house sewer, a practice common in England. He said:

"Many years ago, but within the recollection of many of us, the only protection that existed against the dangerous intrusion of sewer gas to the interior of dwellings consisted of an unventilated soil-pipe provided with a D trap, connected to a pan closet. The idea of making at some point a complete disconnection between the house drain and the public sewer occurred to him (the author) and, no doubt, many others, as an obvious precaution, but the honor of having put the proposal into actual practice and giving publicity to the system rested, he believed, with the late Dr. Fergus, of Glasgow, who made a manhole in his back garden on the line of his house drain, where he fixed an old-fashioned form of trap with a disconnecting channel. Soon afterwards the arrangement first used by Dr. Fergus was improved upon by Mr. Buchan, who introduced an improved form of trap, which bore his name and became widely adopted in connection with an access chamber. This system of disconnection had remained, with a few changes in details, the standard arrangement ever since, and its adoption had spread all over the civilized world unchallenged until quite recently, when advocates had risen who almost demanded that it should no longer be used and that the disconnecting house trap should be definitely abandoned."

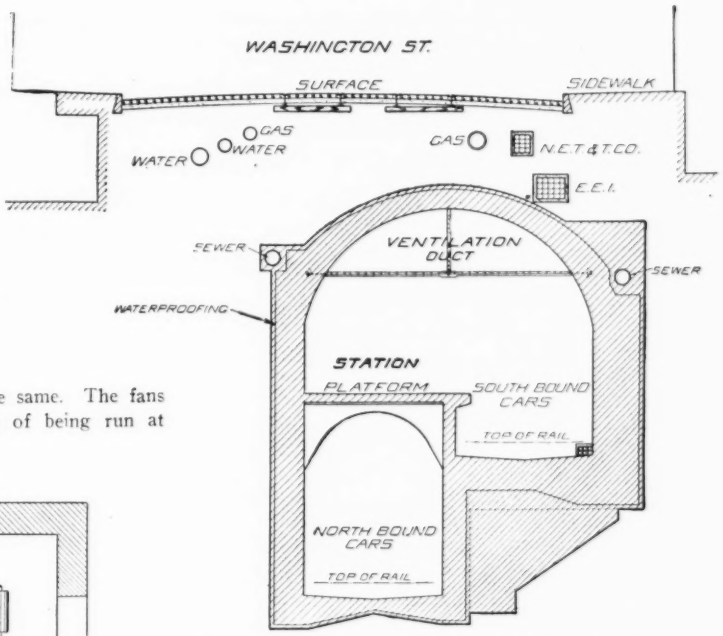


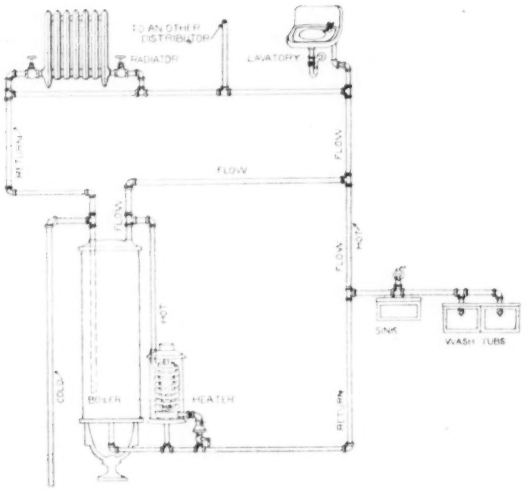
Fig. 7. Sectional view of fan chamber at Milk street. This also should be studied in connection with Fig. 5.

Questions and Answers

This department is maintained for the use of every reader of "Domestic Engineering." We solicit problems from you and will give them our best attention. In stating your questions please give all of the facts as clearly as possible and when necessary accompany your question with a correct layout of the job.

A PROBLEM IN HOT WATER HEATING.

272. **Chicago, Ill.**—To the Editor of "Domestic Engineering." Sir: I enclose herewith a sketch of a kitchen range boiler and would like to ask the readers of your valuable paper what their opinion is in regard to this job. How about the system? Will it work?



Sketch submitted by D. W., who would like to get suggestions about the defects of the job.

I would like some suggestions in regard to faulty construction or defects as may be suggested by your readers from practical experience. **D. W.**

We publish this letter and sketch as given, and would suggest that here is a first class chance for some of those who follow these questions and answers to try their hand and see if they can find the man in the wood pile.

RATE FOR FIGURING RADIATION.

275. **Wayfield, Ky.**—To the Editor of "Domestic Engineer." Sir: I have one of your "Steam Fitter's Computation Books" which I find to be indispensable, but along this line I would like to ask one question: What rate do you figure ordinary frame, brick and concrete houses, when you desire to heat them to 70 degrees Fahr. in zero weather. **O. S.**

Regarding frame and brick houses in Kentucky we should use Carpenter's "55ths" rule, the formula for steam we now print. It is as follows:

$$\frac{CC}{2/55} + G + \frac{\text{EXP. Wall (-Glass)}}{4} \div 4 = \text{Steam radiation}$$

When figured out this may appear a somewhat liberal amount, but it is better to have a trifle too much than to skimp the job. Regarding the concrete building we do not care to make any definite statement at present, but will publish information at a later date covering the matter.

A BLANK FOR PLUMBING ESTIMATES.

211. **Springfield, Mass.**—To the Editor of "Domestic Engineering." Sir: Will you give me any tips or kindly publish a form of estimate sheet for a plumbing job? Something that will so arrange the items that when you arrive at the end, all the material will have been figured in. **J. B.**

In answer to this inquiry we publish a form which we believe will meet the requirements. We would also state that we have for sale several different forms of estimate sheets and estimate books which have met with much approval and appreciation on the part of the trade and that we should, upon application, be glad at any time to forward sample sheets for examination.

PLUMBING ESTIMATE

CLOSETS	Lead Bends				
	" Ferrules—4"				
	" Ferrules—2"				
	" Pipe				
	" —Lbs. of Solder				
	Slip Joints				
	Putty—No. of Lbs.				
	Screws for Closet				
	Cost.....				
BATHTUBS	Trap				
	Solder				
	Lead Pipe				
	Ferrules—2"				
	Slip Joints				
	Cost.....				
LAVATORIES	Trap				
	Supplies				
	Cocks				
	Ferrules—2"				
	Solder				
	Lead Pipe				
	Slip Joints				
	Chain Stays				
	Cost.....				

PLUMBING ESTIMATE—Concluded

SINKS

Traps
Faucets
Solder
Brackets and Screws
Lead Pipe
Ferrules
Stopper
Cost.....

RANGE BOILER

Boiler and Stand
Sediment Cock and Waste
Boiler Couplings
Boiler Tube
Painting or Bronzing
Cost.....

URINAL

Urinal Cock
Traps
Solder
Ferrules
Marble—No. of Feet
Cost.....

TRAYS FOR LAUNDRY

Traps
Faucets
Lead Pipe
Solder
Ferrules
Cost.....

STREET WASHER

Street Washer
½" Stop Cock
¾" " "
Connection
Ft. of Pipe
Cost.....

SOIL PIPE

6" Soil Pipe
4" " "
2" " "
6" Fittings
4" "
2" "
4" Rests for Pipe
2" " " "
....Pipe Hangers or Chain
4" Clean Out
2" " "
4" Flashing
2" "
....Lbs. Pig Lead
....Lbs. Oakum
4" Clean Out
2" " "
....Ft. ½" Galv. Pipe
.... " ¾" " "
....Galv. Fittings
....Straps
Cost.....

SEWER PIPE

....6" Sewer Pipe
....4" " "
....6" Fittings
....4" "
....Cement
....Day's Labor—Common
.... " " —Plumber
.... " " —Helper
....Gasoline
Permits
Inspections
Freight
Car Fare
Incidentals
Breakage
Per Cent for Running Exp.
" " Profit
Cost.....

Remarks .....

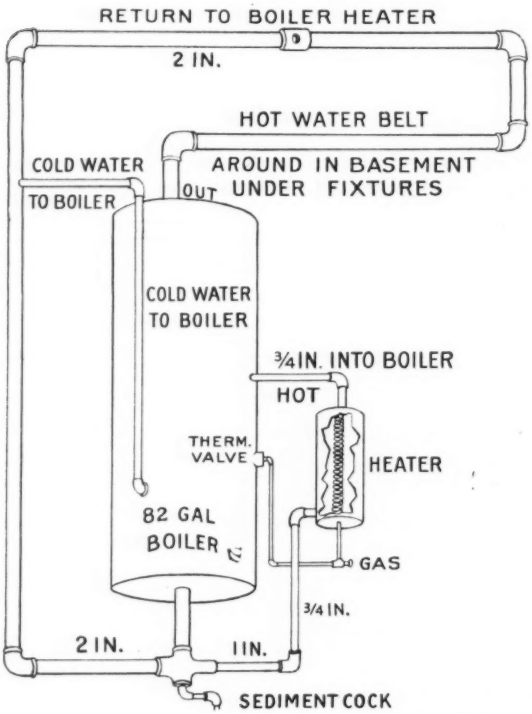
HOW TO FIND THE SIZE OF A STEAM MAIN.

Boston, Mass.—To the Editor of "Domestic Engineering." Sir: Can you give me a rule for finding the size of a steam main, that will work well upon the general run of figuring? **A.**

Quoting from one of the writers who has an article upon this subject in the book published by us, "Sizes of Flow and Return Mains," we find the following: "To determine, approximately, the size of steam mains, and principal risers, allow one square inch area in cross section of main for each one hundred square feet of radiation."

GIVES G. L. A FEW SUGGESTIONS.

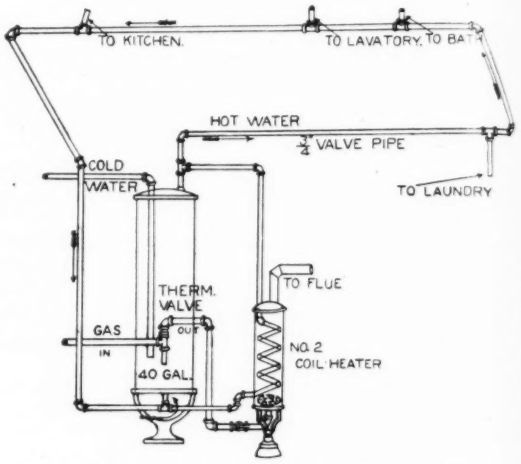
272. Columbus, Kan.—To the Editor of "Domestic Engineering." Sir: Referring to G. L.'s sketch in Question No. 230 in the issue of October 16, 1909, of your valuable journal, I would like to make a few suggestions. Not knowing just what the requirements are in this instance it would be hard for anyone to tell exactly what is proper, but the job looks all out of proportion to me. For instance, the 2-inch pipe is



"G. L.'s" sketch of system to furnish a residence with hot water, which "S.," of Columbus, Kan., criticises.

larger than necessary; the cold water supply would require a special tapping in the side of the boiler. As it now is, the cold water supply seems to connect up with the hot water circuit, which would give poor results.

I submit herewith a sketch of my way of installing a job of this kind. If this is followed closely I am sure that G. L. will obtain the desired results. Such a system would supply a family of seven persons with plenty of hot water for bath, lavatory and kitchen sink on first floor, as well as for the laundry in the basement, where the range boiler is located. If the bath-



Sketch of system to supply residence with hot water, submitted by "S.," of Columbus, Kansas.

room is on the second floor the piping for the hot water supply should be different to the extent that the pipe should run up and return to and from bath, but the principle of the system would be the same.

Yours truly, **S.**

WHAT ABOUT THIS COMBINATION?

273. Unionport, Ohio.—To the Editor of "Domestic Engineering." Sir: Will you please tell me if two hot water radiators can be placed upstairs in two different rooms with partition between the radiators and piped to a hot air heater in the cellar and work successfully, heating the two upstairs rooms? The two pipes are run to heater and connected to the radiators together above the floor upstairs. If this can be done, how large should the pipes be, and would there have to be an expansion tank above the radiators? We would not expect to heat the rooms to stay in, only to make comfortable to sleep in. Please let me know what you think of such an arrangement. **J. W.**

This is done in certain instances where the rooms upstairs are located in such a way that it is difficult to get the hot air from the furnace to go to them.

As to the size of pipe to run we can only guess, not knowing the dimensions of the rooms. We should not advise running less than 1¼ inch, and perhaps 1½ inch might be required. If the connections must be made above the floor, it would be safer to use divided tees at the point where the branches to the radiators are taken off the riser. The same will apply to the returns. In this case be sure to see that the flow pipe gets a good rising pitch toward the radiators, and do not allow any traps in the return line.

HOW LONG IT SHOULD TAKE TO INSTALL A BATH-ROOM.

276. **Phoenixville, Pa.**—To the Editor of "Domestic Engineering." Sir: I would like to give you my answer to the question: "How long should it take a man to install a bath-room, including bath-tub, water closet, lavatory, range boiler and piping? If a plumber cannot do such a job in five days he is either a poor worker or else lazy. I can do a job of that kind in an old or new house in five days without any assistance whatever, and I am not hurting myself either. I am now referring to an iron pipe job. A lead job would take seven days without a helper. Respectfully, **T. J. Wilson.**

PHOENIX DEFENDS HIS RULE FOR FINDING 45 DEGREES MEASUREMENTS.

I have read with pleasure, the rule given by Mr. Troland and consider it a good one under certain conditions. With reference to my own rule to which he alludes, I will state that while 17 is not the exact diagonal of a 12-inch square, to the fraction of an inch, it **is near enough** to make the rule **pan out correctly.** I know this to be so because I have tried it out many hundred times when working with the tools. Fittings do not always screw on to the pipe the same distance. On two ells or tees, which are apparently just alike, there may be at least a quarter of an inch's difference in the distance they will make up. A man using the tools every day gets used to this difference and makes allowance unconsciously many times for this state of affairs and has success with his measurements.

I have used all kinds of rules and schemes and the rule I gave has always filled the bill in every case.

Down in Connecticut plumbers and fitters may carry carpenter's squares in their "kits" and it may be common practice in that country.

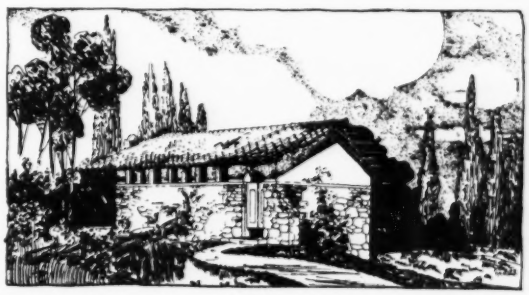
I would like to have some one who has worked in the shops in six or eight states in the West tell me how many plumbers or steamfitters they ever noticed carrying a square in their tool chest, and no journeymen I have seen is going to chase around and hunt up a square, when he can stand still at the bench and think out the measurement if he is on to his job. Nevertheless I am much obliged to Mr. Troland for his suggestions and wish that others would take a similar interest in the craft, and I had much sooner be criticised than praised. **Phoenix.**

THE COMMON DRINKING CUP.

Kansas has decreed that the common drinking cup must go. The attorney-general of that state has given an opinion backing up the authority of the Board of Health to issue the order abolishing the old-fashioned cups from railway trains and stations, public and private schools. The board's official publication states that the session laws of 1907 provide that any person or corporation who refuses to obey the rules or regulations when made and published by the State Board of Health shall be subject to a fine of not less than $50 nor more than $500 for each offense.

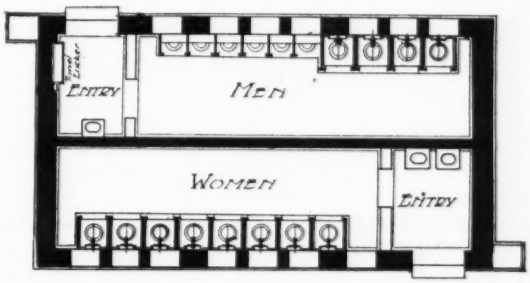
New Public Comfort Stations

Los Angeles, Cal.—In the development of a modern city, beauty and the comfort and convenience of the general public plays a prominent part, one of the chief demands of a city's park development is to afford sanitary toilet conveniences for the hundreds who take advantages of these breathing places, and to make these places conform to the general idea of beauty and harmony in the



Exterior view of public comfort station now being built in Sycamore Park, Los Angeles, Cal.

landscape effect. This city has solved the problem admirably by its comfort stations, six of which are under construction in the various parks. The accompanying sketch will give an idea of the type of building designed by the architects, Hunt, Eager & Burns, and of the convenient and sanitary interior arrangement. The buildings are unique and artistic in architecture and plan. The one shown herewith, to be erected in Sycamore Park, will be constructed of cobble stones, the others of brick, otherwise all buildings will be similar. The roofs will be of



Plan of public comfort station being built in Sycamore Park, Los Angeles, Cal.

terra cotta tile, supported by heavy surfaced timbers. The walls, partitions and floors of solid masonry, with smooth cement finish on the interior. The latest sanitary plumbing appliances will be installed, all woodwork being eliminated. The entrances for men and women are at diagonally opposite corners, and each compartment will be provided with lavatories. We regret to see that no provision seems to have been made for a room for an attendant. Stations of this size should have constant care.

Some Facts About Water Supply Syst

WE ARE not buying two pages of advertising space in the Domestic Enginering just to make a splurge, nor to give our advertising man a chance to earn his salary. In the words of the breakfast-food man up in Battle Creek, "there's a reason."

There are some important things which we want to tell the readers of D. E. We want to tell you some facts about water supply systems—about water systems in general—and about the Kewanee System in particular.

And this big space—this double-page spread, gives us lots of room to say what we want to say, in the way we want to say it.

First: A Word About Co-operation

A great many letters come to us from dealers, which read something like this: "I am receiving inquiries for your water supply systems. Send me your literature and prices and let me know how to get the business."

If you ever write a letter like that to us, you are going to start something. You will find us on our toes, with sleeves rolled up, ready to pitch in and help you sell water supply systems—Kewanee Systems.

When we say that we are going to co-operate with you, we mean that we are going to do something more than give you a price list and leave you to paddle your own canoe. We furnish the ammunition so that you can stir up things in your territory. And then we are Johnny-on-the-spot to help you clinch the sales.

Our dealers appreciate that assistance. We know, because they are constantly calling on us for literature for distribution and electrotypes for advertising; and they are asking us to get after their customers for them; and they are taking advantage of the services of our engineering department.

Second: Some Reasons For Selling Kewanee Systems

Now, we leave it to you if a water system which has the following features, is not a good one for you to handle:

1—It is well known.
2—It is a proven success.
3—It is easy to sell.
4—It is easy to install.
5—It is fully guaranteed.
6—It pays a good profit.

Let's see how the Kewanee System stacks up with those six features.

1—It is surely well known. We have been advertising constantly for years, in a list of publications estimated as being read by over ten million people. Mind you, we don't buy a little dab of advertising in January and then take another little flyer in May, just to tell you about our "big advertising campaign."

Somebody said "the postage stamp is a success because it sticks to one thing until it gets there." We are emulating the example of the postage stamp in our advertising. We are sticking to it—and we are getting there. Yes, the Kewanee System is pretty well known.

2—Is the Kewanee System a proven success? Well, if over ten thousand people should line up and tell you how well satisfied they are with their Kewanee Systems, you would pretty nearly have to believe them. That's our proof—over ten thousand Kewanee Systems in successful operation.

3—The Kewanee System is easy to sell. It is half sold before you talk to your man, just because it *is* a Kewanee System. When you say "Kewanee," you are introduced. Mr. Prospect knows what you have—chances are, he has been waiting for you.

4—Just because a man knows the difference between a monkey-wrench and scythe, is no reason why he can install a water supply plant. We dodge that mail-order argument about every man being his own plumber. But a *real* plumber who knows about pipe fitting, will have no trouble about installing a Kewanee System. Our complete blueprints and instructions make it easy for him.

5—There are guarantees and guarantees. But a guarantee is no stronger than the house behind it. That firm that went out of business last week, cannot be called upon to make good on a guarantee this week. The Kewanee guarantee really means something; and we will always be here to back it up, never fear.

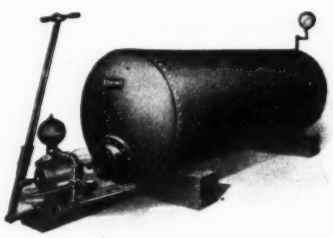
KEWANEE
PNEUMATIC TANKS

This trade-mark, in blue, is put on every genuine Kewanee Pneumatic Tank

The dealer who orders from the jobber can see that he gets what he ordered—the genuine Kewanee Tank—by looking for the blue label trade-mark.

The user who buys from the dealer identifies his Kewanee Tank in the same way.

Every Kewanee Pneumatic Tank is tested to a pressure of 125 pounds and is guaranteed good for a working pressure of 75 pounds.



Kewanee System No. 11

Thousands of these hand outfits are used every day and are giving good service. We have three styles of Kewanee Systems which include hand-pumps, and they are regularly furnished with several sizes of horizontal and upright Kewanee Tanks.

—Points of Interest to Every Dealer

—If your business pays you a good profit, you are lly an optimist. Kewanee dealers are optimists, e they make good liberal profits when they sell ee Outfits. There is no mystery about our price list discount sheet isn't a Chinese puzzle. Both are printed.

ird: About Tanks and Pumps

poor pressure tank will look about the same as a one. But you don't buy the tank for an ornament. oks of a tank will not satisfy your customer when he ou up on the 'phone and tells you he can't get water. he wants is water—water—water. And the only way get it is by using the best tank and the best equip- We are the pioneers in the water supply business know what's right.

e have been making tanks longer than anyone in the ss; and we can show where we have put out over ten nd Kewanee Tanks and Outfits. They are all working ctorily, even while you are reading this.

at voice over the 'phone—does it command you, be- cuss words, to get some one out to fix the water plant r customer can wash his hands? Or does it say that n across the street wants a water system just like his r you to get after Mr. Man? Which kind of talk makes e most money—and lets you sleep nights?

u play safe when you buy Kewanee Tanks and Out- The tank will be right. The pumping outfit will be The whole water system will work fine. There will cuss words coming over ***your*** telephone wire.

Fourth: Made in Kewanee

d Kewanee Systems are made in Kewanee. Kewanee are made here—all dealers know that. And your er knows that if the tank comes from Kewanee, good tank.

e want to give out as the truest fact you ever heard, ve build Kewanee Pumping Machinery. Ordinarily g rigs are not designed for air pressure service—we d that long ago—about fourteen years ago. Since then, e experimented with everything which could possibly d, until we have designed a line of ***our own*** rigs which work right.

u can bank on Kewanee Pumping Machinery giving ction every time. And you can put it down as the e truth that we make pumping machinery—good g machinery—pumping machinery built for air pres- rvice.

So you see, when you get a Kewanee System, the whole thing will be shipped from Kewanee. You don't take a chance on the tank being shipped from Kokomo, the pump from Oshkosh, the engine from Utica and the valves and gauges from Perryopolis. The whole thing goes out from Kewanee—one shipment—one freight bill—one handling at your end of the line.

Fifth: About Imitations

Yes, imitation is the sincerest flattery—but it doesn't pay dividends for the imitated. You want to get the benefit of all the business which ***you*** develop. You don't feel quite right about it, if some fellow with a Stillson wrench and a piece of lead pipe camps on your trail, trying to grab the results of your efforts. That kind of imitation may flatter you, but it doesn't pay your rent or taxes.

While you can't prevent your imitator from claiming that his work is "just as good" as yours, you can keep him from claiming that ***his*** work is ***your*** work.

Here's the point: While we can't prevent makers of inferior imitation outfits from saying they are "just as good" as ours, we can prevent them from saying their imitations ***are*** Kewanee Systems. We do not like law cases any better than most people. But you can't blame us for taking ***legal action,*** to protect people who think they are getting Kewanee Systems when they are not.

We could put it stronger than that, but the fellows who are guilty of the illegitimate competition will understand.

But why bother with an imitation when you can get the original—the real thing—the Kewanee System. The cost is no more, but the results all 'round will be 100% more satisfactory.

Sixth: And Last

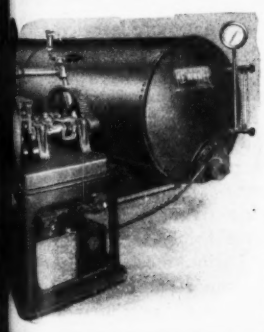
Now why not get in touch with us? We would like nothing better than to go into details regarding our selling plan. Surely, a lot of water systems can be sold in your territory. Let us tell you how to land the orders.

Drop us a line on your letter head. Address us at Kewanee, or write one of our branch offices—the one nearest you. Drop the line and we'll bait it for big fish.

An advertisement, like a railroad, should have good terminal facilities—only—write us now. And if you mention Domestic Engineering when you write, you will please the advertising man.

Kewanee Water Supply Co., Kewanee, Ill.

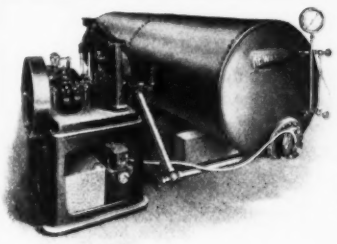
1566 Hudson-Terminal Bldg., 50 Church St., New York City.
305 Diamond Bank Bldg., Pittsburgh, Pa. 1212 Marquette Bldg., Chicago, Ill.



Kewanee System No. 250

This is a complete plant, including a Kewanee Tank and a combined 2½ H. P. gasoline engine and suction pump. Used in connection with wells, cisterns and other sources where the lift is less than 20 feet.

Engine can be readily disconnected from pump and used for other power purposes.



Kewanee System No. 240

This complete plant includes a Kewanee Tank and a combined 2½ H. P. gasoline engine and deep well working head. Used in connection with wells where the lift is more than 20 feet.

The Kewanee Pumping Outfits in both the No. 240 and 250 Kewanee Systems, are the highest grade pumping engines on the market. They are made in Kewanee.

WHOLESALE PLUMBING AND HEATING NEWS

The National Committee of the Confederated Supply Associations holds annual meeting and elects officers.

The Kennedy Company, of Cleveland, Ohio, purchases the business of the Cuyahoga Plumbing Supply Co. in that City.

NATIONAL COMMITTEE HOLDS ANNUAL MEETING.

The National Committee of the Confederated Supply Associations held its annual meeting in New York City on Thursday, November 18, at which the following officers and members of the board of directors were unanimously elected for the ensuing year:

President, J. J. Ryan, of J. J. Ryan & Co., Chicago.

Vice-President, W. A. Myler, of Standard Sanitary Mfg. Co., Pittsburgh, Pa.

Treasurer, L. O. Koven, of L. O. Koven & Bro., New York City.

Secretary, Frank S. Hanley, 261 Broadway, New York City.

Board of Directors: J. J. Ryan, W. A. Myler, L. O. Koven, John D. Hibbard, of Chicago; J. H. Borton, of Philadelphia; D. L. Hamill, of Buffalo.

THE KENNEDY COMPANY PURCHASES THE BUSINESS OF CUYAHOGA PLUMBING SUPPLY COMPANY.

The Kennedy Company, of 1310-1318 Huron road, Cleveland, Ohio, has **purchased the business and stock of the Cuyahoga Plumbing Supply Company** at 4408 Hough avenue in that city. The transfer took place on November 17, and the Kennedy Company took the business just as it stood on that date, assuming the Cuyahoga Company's indebtedness and taking over its accounts and bills receivable. President W. G. Callow, of the Kennedy Company, is to be congratulated on this new move, as it signifies another step of progress in the history of his company.

MONARCH COMPANY CHANGES ITS NAME.

The Monarch Emery and Corundum Wheel Company, of Camden, N. J., has changed its name to **The Monarch Grinding Wheel Company.**

TO MAKE STEAM APPLIANCES.

The Co-operative Condenser Company, of Chicago, Ill., has been incorporated under the laws of West Virginia with a capital of $200,000 to manufacture machinery and appliances for the condensation of steam. The incorporators are J. D. Hubbard, H. S. Derby, Le Grand Smith, M. A. McCollom and A. L. Pearse, all of Chicago.

WILL MAKE HEATING APPLIANCES

The Reliance Hot Water Heating Company, of Chicago, has been incorporated, with a capital of $5,000, to manufacture heating appliances and attachments. The incorporators are George R. Gallagher, Charles Brandt and John M. Camelon.

REPORT BUSINESS INCREASING.

Krauss & Roberts, jobbers in plumbing and heating supplies at Baltimore and Eden streets, in Baltimore, Md., report that they have enjoyed such a large increase in business that it has become necessary for them to secure additional warehouse room.

HUMPHREY CO. COMPLETES ADDITION.

The Humphrey Company, of Kalamazoo, Mich., has completed a large addition to its extensive plant, located at the junction of Rose street and the Michigan Central Railroad in that city. The company has also installed a large amount of machinery for the manufacture of automatic water heaters and thus materially increased its capacity.

WILL SOON MAKE PLUMBERS' WOODWORK.

Milwaukee Seat & Tank Co., of Milwaukee, Wis., which was recently organized to manufacture plumbers, woodwork, has purchased a plant on 15th avenue in that city, which it expects to have in full operation within thirty days. E. W. Durkin, formerly with the Rundle-Spence Mfg. Co., of Milwaukee, is secretary and general manager of the new company.

NEW DAHLQUIST FACTORY COMPLETED.

The Dahlquist Manufacturing Company, of South Boston, Mass, manufacturers of copper range boilers, has completed the erection of its new factory, 50x50 feet, two stories and basement, and will occupy it as soon as its equipment with the most modern machinery is installed. Among the items of equipment are a thirty-five horsepower gas engine and an individual electric lighting system.

REID SUPPLY CO. IN ITS NEW BUILDING.

The Reid Supply Company, of Minneapolis, Minn., has moved its plumbing, heating and mill supply business into its new four-story and basement building at 240-246 Sixth avenue, South, in that city. The new building is located on a spur of the Chicago, Milwaukee & St. Paul Railway, and the entire plant, including warehouse, pipe-yard, etc., has been planned to handle the company's business in the most economical and labor-saving manner consistent with prompt service.

WHY NOT A TOUR TO SOUTH AMERICA?

What may be taken as a suggestion to manufacturers and dealers in plumbing, heating and mill supplies comes from United States Consul Isaac A. Manning of La Guira, Venezuela, and was prompted by an announcement that a tour of American manufacturers, exporters and importers was being arranged for European countries. Consul Manning thinks a tour of American business men to the Latin-American countries would be commercially as important as that to Europe, and adds: "Notwithstanding the shortcomings of **American manufacturers** and producers in their

relations with South American trade, it is hoped that they will soon get **in better touch with their Latin-American neighbors,** and thereby sell them more manufactures and in return purchase much more of their products. Nothing would have a better trade effect, leaving out of question the enlarged friendly relations that would result therefrom, than a visit of a number of our business men, in a body, to the business men of South America. The visit should be of a class who travel with the object of broadening their ideas and not for 'killing time.' Until such men from the United States get the South American travel habit more developed they cannot expect much closer commercial intercourse with the merchants of these countries. They should visit such places as Cartagena, Barranquilla and Santa Marta, in Colombia; Caracas and, if possible, Ciudad Bolivar, in Venezuela; the various ports in Brazil; Montevideo, in Uruguay; Buenos Aires, in Argentina; Santiago and Valparaiso, in Chile; Callao and Lima, in Peru; Guayaquil, in Ecuador, and Panama."

PERSONAL MENTION

E. A. Keithley, of San Francisco, Cal., was in Chicago this week on his way home from his annual trip to the East.

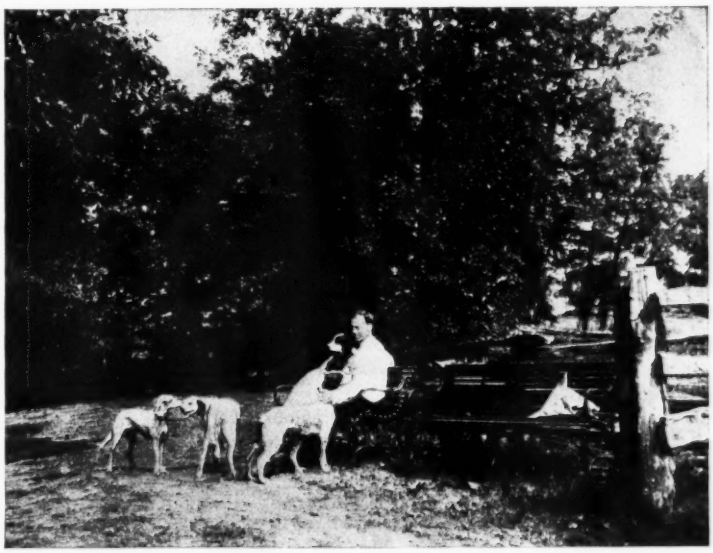
Geo. H. Bailey, president of the Pittsburgh Sanitary Mfg. Co., of Pittsburgh, is here shown accompanied by his group of English setter dogs, "Steel King," "Steel Queen," "Steel Prince," "Steel Princess" and "Enamel," for Mr. Bailey has no small reputation as a hunter.

Harry Le Gassick, who conducts a plumbing business at 3273 Perry street, Denver, Colo., is at present on a trip to his old home in England, partly for pleasure and partly on business.

J. C. Pierson, president of the Brock Wrench Manufacturing Company, of 18 Dey street, New York City, returned a few days ago from an extended business trip through the Western states, going as far as the principal Pacific coast cities. Mr. Pierson reports business conditions throughout the Western country as very satisfactory, and the decorations in his order books indicate a very gratifying increase in the popularity and sale of his company's products.

E. E. Haff, of F. N. DuBois & Co., New York City, has just returned from a hunting trip at Great South Bay, Long Island, with eighty-one ducks.

J. J. Laferme, of 154 Faubourg St. Martin, Paris, France, European representative for Trenton Potteries Company, Findeisen & Kropf Mfg. Co. and Humphrey Company, has been spending three months in the United States and Canada.



George H. Bailey and his English setters

THE METAL MARKET

THE COPPER COMBINATION.

New York, N. Y.—A producer who is identified with the prospective copper consolidation is quoted as follows: "Negotiations looking toward a merger of Amalgamated-Cole-Ryan and Guggenheim properties continue without interruption. Conferences, at which the plans will be discussed, will be held one of these days. There is no truth whatever in the reports that the merger has been declared off. The copper merger will in no way conflict with the laws As a matter of fact we are in a position to leave out many bad features that are now incorporated in the make-up of existing consolidations. The proposed merger will benefit the copper industry, more so in fact than the Steel Corporation has benefitted the steel industry. At conferences to be held in Washington this week, the proposed copper merger will be set before President Taft in its true light. There will be no monopoly, and a consolidation such as proposed will help the consumer as well as the producer."

IRON MILLS TO BE BUSY FOR MONTHS.

New York, N. Y.—With the capacity of mills and furnaces taken up for months ahead, the iron trade is yet scanning the situation with the greatest care for the first signs of counter currents, says The Iron Age. There is more disposition to question how this or that development will affect business and executive and legislative programs are figuring more largely in forecasts. A significant indication as to mill order books is the strictness governing the taking of new business, particularly in bars, plates, and structural shapes. The steel companies generally are instructing salesmen to accept no business for the first half of 1910 without referring all details to the general sales offices. Prob-

ably no such care has ever been taken to guard against overselling or the placing of business beyond the needs of the buyer. In production both of pig iron and finished material the steel corporation last month fell behind its October record, both in total and in daily rate. Of blast furnace products its subsidiaries turned out about 1,180,000 gross tons or 55,000 tons less than in October.

PIG IRON ACTIVITY NEARLY CONFINED TO STEEL MAKING IRONS.

Cleveland, O.—Extremely heavy specifying against contracts for finished material continues, says The Iron Trade Review, and will probably be maintained throughout this month, as consumers are anxious to specify in all that is coming to them, at lower prices than now prevail, and mills are canceling tonnages not specified strictly according to contract. The pig iron market in foundry grades is standing the test of dullness, although some furnace interests in the central west and middlemen holding southern iron are willing to make concessions. Pig iron activity of the week was confined almost entirely to the steel making irons. In the east 25,000 tons of basic were sold. In the Pittsburg district 18,000 tons of bessemer, for the first quarter, were taken by the Republic Iron and Steel company, and 10,000 tons by another interest whose identity has not been disclosed. Bessemer sales for November amount to 69,300 tons. The bessemer for November was $19. valley, and the average basic price was $17.31, valley.

NEW YORK METAL MARKET, NOVEMBER 30.

Copper, Prime Lake	$13.50
Copper, Electrolytic	13.40
Lead	4.40
Spelter	6.42½
Antimony, Cooksons	8.37½
Straits Tin	31.60

CHICAGO IRON MARKET, DECEMBER 2.

Lake Superior Charcoal	$19.50- $20.00
Southern, No. 2 Foundry	18.85- 19.35
Northern, No. 2 Foundry	19.00- 19.50

December 2, 1909.

Foundry Iron was the same as the week previous.
$2 more a ton than year previous.
Copper was ½ cent more a lb. than month previous.
the same price as the year previous.

NEW YORK OLD METAL MARKET.

New York.—Dealers' buying prices are as follows:

Heavy crucibled copper	$12.25	to $12.50
Uncrucibled heavy copper	12.00	12.25
Light copper	10.90	12.00
Plumbers' cocks and faucets	9.50	9.75
Heavy lead	4.25	4.30
Tea lead	4.00	4.10
Heavy lead		3.90
Solder joints	6.50	6.75

Matawan, N. J.—Alonzo White, of this place, has secured the contract for the heating of Andrew Bourse's and John T. Dill's residences.

OBITUARY

William Scheuer, who has conducted a plumbing establishment at 178 East Fullerton avenue, Chicago, passed on at his home in this city on Sunday morning, November 21, in his forty-third year. He was a member of the Chicago Master Plumbers' Association. His wife and a son survive him.

James C. Gallagher, junior member of the plumbing firm of James Gallagher & Son, at 831 Hillen street, Baltimore, Md., passed on at his home in that city on Saturday evening, November 20, in his forty-first year. He had been in poor health for the last two years. He is survived by his father, a sister and four brothers.

William L. Miller, president of the W. L. Miller Heating Company, of 9 Jackson Boulevard, Chicago, passed on at El Paso, Texas, on Sunday, November 28, in his 43rd year. His death was caused by pneumonia. In October he went to El Paso, and his health had been declining ever since. Mr. Miller, with his brothers, Charles and F. W., organized the W. L. Miller Heating Company in 1905. He was a member of the Chicago, Cleveland and New York Athletic clubs, the A. F. and A. M., of Muskegon, Mich., and several other fraternities. He was buried Friday afternoon, December 3, at Muskegon, Mich., under the auspices of the local Masonic lodge. He was born in Detroit and he is survived by his widow, now living at Muskegon.

PUBLIC COMFORT STATIONS

PRESIDENT NOLAN CALLS ATTENTION TO NEED OF PUBLIC COMFORT STATIONS.

Washington, D. C.—Walter D. Nolan, president of the National Association of Master Plumbers, has recently been doing some good missionary work for the cause of establishing public comfort stations in all the cities of any size in this country. He has begun his campaign with personal letters to the mayors of all the cities in which members of the National Association are found. A printed copy of the **Resolution on Public Comfort Stations,** adopted by the National Association of Master Plumbers at its meeting in Detroit last summer, has been enclosed in each leter. In his communication to the mayors Mr. Nolan comes out strongly in favor of public comfort stations and urges the necessity of such conveniences in all cities.

TO SECURE SITE FOR PUBLIC COMFORT STATION.

Milwaukee, Wis.—Condemnation proceedings will be commenced to gain possession for the city of the triangular block bounded by Wells, Second and West Water streets as a site for the first public comfort station. The common council has accepted the plans of Architect Louis Lenz, Milwaukee, as a gift, and as soon as the preliminaries are overcome, actual work will begin. Grand avenue bridge, connecting Grand avenue and Wisconsin street, the main thoroughfares, will most likely be the site for the second station.

NEW COMFORT STATION FOR SEATTLE.

Seattle, Wash.—A building permit was issued this week for the construction of a public comfort station in this city, to cost $10,000.

ASSOCIATION NEWS

CHICAGO MASTER PLUMBERS' PLEASURE CLUB ENJOYS GREAT STAG PARTY.

Chicago, Ill.—The Chicago North and Northwest Side Master Plumbers' Pleasure Club held its annual stag party and smoker in its pleasant club rooms at 1514 Milwaukee avenue, in this city, on Wednesday evening, November 24, the night before Thanksgiving, and a most successful and enjoyable affair it was in every respect, due to the untiring efforts of the able and energetic committee of arrangements, which consisted of E. J. Benning, chairman; Jos. Scheuer, E. C. Wagner and last but not least, Col. Fred J. Wagner. So carefully had all the preparations been made for a thoroughly enjoyable evening that the entire event was not marred by one dull moment. Everybody came expecting a good time and no one was disappointed, as the program exceeded the most sanguine expectations.

Though the weather was not exactly ideal, more than fifty members were on deck ready to make an attack on the two long tables which were burdened with choice viands. At the word of Col. Wagner the festive board was soon surrounded by the select company of master plumbers, and full justice was meted out to the many good things, both eatable and potable, with the result that everybody present felt exceedingly well pleased with himself and his surroundings.

The joys of the table being at an end, the fragrant "Habanas" were distributed and lighted. This last act had hardly been performed before Mr. Benning introduced the first number of a well selected program by high-grade vaudeville artists, which all were rewarded with well deserved applause for their efforts. The monologist made some great hits by personal allusions to Messrs. Wm. J. Lang, C. J. Stein, Chas. C. Breyer, E. C. Wagner and L. A. Clausen, who were all present and enjoyed the fun. The lady singers created such enthusiasm with their songs that they in several cases were joined in the chorus or refrain. The jugglers also performed their tricks with great dexterity.

In the intermission following this part of the program, Jos. Scheuer was called upon for a speech, and though the call was a surprise, he arose and proved himself equal to the occasion. We understand that he has secured a copyright on his immensely interesting literary product, wherefore we are barred from reproducing it either in full or in condensed form, much to our regret.

After this enjoyable intermission came another pleasant surprise in the form of several songs rendered with great skill and precision by the Amphion Singing Society, consisting of twenty-four members, among them several worthy master plumbers, such as E. C. Wagner, L. A. Clausen, Fred Grosch, H. O. Ammeson and A. C. Peterson. The reason that these master plumbers are prominent members of this society is the fact that they all are good singers and, to use E. C. Wagner's words, firmly believe that "Wo man singt, da lass Dich ruhig nieder, böse Menschen haben keine Lieder." These songs were so greatly enjoyed that it took some little time before the applause would cease.

This was the end of the official program and also the time scheduled for the end of the evening's entertainment, but it now leaked out that there were other singers among the master plumbers present, and soon a notable quartet consisting of Wm. J. Lang, Chas. C. Breyer, Jacob G. Weber and Wm. Hanrahan were seen in the vicinity of the piano, where they rendered a number of both old and up-to-date favorites, until

E. J. Benning, of Chicago.

Secretary of the Chicago Master Plumbers' Association and a successful plumbing contractor. He was chairman of the committee of arrangements which made the stag party and smoker of the Chicago North and Northwest Side Master Plumbers' Pleasure Club a pleasant and most enjoyable event.

they at length sang: "We Won't Go Home Till Morning," when they all of a sudden decided that they would do it anyway. This was then taken as the signal for the end of what had been a most successful and pleasant affair from start to finish.

Among those who graced the occasion with their presence, and not mentioned above, were: Wm. Redieske, A. W. Bahn, W. F. Bahn, Henry Breyer, P. K. Clayton, G. Franklin, D. J. Hickey, Paul Jacoby, J. Kiessling, Frank E. Pearson, A. C. Peterson W. G. Wood, Peter Munn and Edward D. Holmes.

FRISCO PLUMBERS RE-INCORPORATE.

San Francisco, Cal.—The re-incorporation of the Master Plumbers' Association of this city upon which the

local has been laboring for a long time, has been effected and the papers filed. The association has a capital stock of $100,000, and among the incorporators were F. J. Klimm, A. Coleman, W. F. Burnham, A. J. Wilson and James E. Britt.

MANHATTAN PLUMBERS' ANNUAL BALL.

New York, N. Y.—The Manhattan Branch of the New York City Association of Master Plumbers held their annual entertainment and ball on Wednesday evening, December 1. A complete report of the event will appear in the next issue of "Domestic Engineering."

BROOKLYN PLUMBERS ENDORSE DONAVAN.

Brooklyn, N. Y.—The Master Plumbers' Association of Brooklyn at a meeting last week adopted resolutions endorsing the candidacy of Dennis J. Donavan for reappointment to the position of superintendent of buildings. A committee of five, consisting of Thomas E. O'Brien, Edward McDonald, Edward Belford, Thomas Radcliffe and Ignatius P. Byrne, was appointed to present the resolution to Borough President-elect Alfred E. Steers, upon his return from Europe.

CONVENTION DATES.

December 7 and 8, 1909.—Annual meeting of the **National Association of Brass Manufacturers,** at the Hotel Astor, New York City.

January 18, 19 and 20, 1910.—**Sixteenth annual meeting of the American Society of Heating and Ventilating Engineers,** in New York City. **The sessions will be held in Engineering Societies Building, 29 West 39th street.**

January 20, 21 and 22, 1910.—**Fifth annual meeting of the American Society of Inspectors of Plumbing and Sanitary Engineers, at Trenton, N. J.**

March 8 and 9, 1910.—**Annual convention of New York State Association of Master Plumbers,** in New York City.

PLUMBING INSPECTION

ABERDEEN PLUMBERS NEED LICENSES.

Aberdeen, S. D.—A plumber was this week arraigned in the municipal court for doing plumbing work without a license. On the advice of his attorneys he pleaded guilty and paid a fine of $10 and costs.

CITY PLUMBING BOARD APPOINTED.

Fort Worth, Tex.—Mayor Davis and Commissioner Powell have this week appointed the following gentlemen to serve on the city plumbing board: J. D. Trammell, city engineer; G. E. Allgaier, city plumber; Dr. W. M. Trimble, city physician; J. A. Barry, master plumber, and A. D. Chandler, journeyman plumber. This was done in accordance with the new state law which provides for the creation and prescribes the duties of this board.

FRISCO BUILDING CODE TO BE REVISED.

San Francisco, Cal.—The San Francisco building laws are being revised and amended and some of the changes will be of interest to plumbers. Buildings designed to be used for dwelling purposes can cover but 90 percent of corner lots and 70 per cent of any other lots. Set rules for the amount of air space in courts are laid down and these are larger than those now carried out. The proposition to allow class "C" structures to be erected to a height of 84 feet in place of 75 feet is still being agitated, but the building committee has expressed itself in favor of the change.

BERKELEY PLUMBERS EXAMINED.

Berkeley, Cal.—An examination for master and journeymen plumbers was held in this city last week and several were on hand to answer the questions. The plumbing inspection department is declared to be in a bad shape, the new charter having but poorly cared for this branch of sanitary work in spite of the recommendations that were made by the master plumbers by special request of those having the framing of the new charter in hand. The main trouble is that experienced men are not at the head of the department and the examining of applicants for the purpose of registration as master plumbers was not as severe as it should be.

NOTES FROM THE WEST

Victor, Colo.—T. F. Callahan of this place has joined the Colorado Master Plumbers' Association. Mr. Callahan is a member of the city council.

Boone, Iowa.—Anderson & Nelson have purchased **L. A. Tillson's plumbing shop on the north** side and will conduct it as a branch of their old establishment.

Estes Park, Colo.—L. F. Boettcher has sold his business here to Griffith T. Kermode, who recently joined the Colorado Master Plumbers' Association as did also E. D. Lindley of this place.

St. Louis, Mo.—The partnership of Hoon & Hilliard, conducting a plumbing business at 7340 Manchester avenue, has been dissolved and J. H. Hilliard has opened a new establishment at 7263 Manchester avenue, where he would like to receive catalogues from jobbers and manufacturers of plumbing goods.

Denver, Colo.—Frank C. Schroter, whose plumbing establishment is located at 64 Broadway, has taken into partnership Harry F. Shea, the firm name to be Schroter & Shea. Mr. Shea has been working in Denver as a journeyman for the Kiefer Plumbing Company for the past seven months, having come from Washington, D. C., where he was with Walter D. Nolan, President of the National Associations of Master Plumbers.

Denver, Colo.—Among new plumbing concerns in this city that have recently opened up for business and have joined the Denver Master Plumbers' Association are: Ambrose Plumbing and Heating Co., 3416 Meade street; Walter Bellon, 428 West Thirteenth avenue, and W. W. Montgomery, 3849 Walnut street. E. C. and William Ambrose were journeymen plumbers up to the time of the late strike, but decided later to go into business for themselves. Mr. Bellon came from the East some months ago. Mr. Montgomery is an old master plumber of Denver, who had to give up his business over a year ago on account of ill health. After resting up for some time and taking a trip to California he has returned, restored to health and is again able to conduct his business.

MIDDLE STATES

FINDEISEN & KROPF MFG. CO.'S RECENTLY ENLARGED PLANT.

The accompaning half-tone engraving of the plant of the Findeisen & Kropf Mfg. Co., of Chicago, gives the reader a good view of the company's recent 60x210 ft. addition. This factory is located on a five-acre tract of land at Rockwell and Twenty-first streets, covering an entire block adjacent to the Belt Line railroad, with which the company has its private switching track. The main building is a four-story structure, 270x500 feet, which together with its smaller buildings and dry kilns has a floor space of 200,000 square feet. This business

The Findeisen & Kropf Mfg. Co.'s plant with its new large addition, at Rockwell and Twenty-first streets, Chicago.

was founded by Fred Findeisen and O. F. Kropf in 1894, and began on Lake street with the modest force of seven men. In 1898 the company located on Ann street, where it remained until 1904, when they moved into their present quarters. Four years ago a brass line was added, which has increased to such an extent as to make necessary their recent addition. Fred Findeisen, president, and O. F. Kropf, secretary and treasurer, are alone in this business, which has been one of the most successful concerns in its line, increasing in fifteen years to its present proportions.

Albany, O.—Walter Whitlatch has purchased H. S. Boba's plumbing business. The transfer will take place in the very near future.

Galion, O.—Sponhauer & Ricker will move their plumbing establishment from South Market street to the Herhold store about January 1, 1910.

Fairbury, Ill.—Walter Swing has purchased the interest of his partner, W. B. Shaw, in the plumbing business, which he will continue at the old stand.

Chicago, Ill.—The John R. Kehm Company, of 51 and 53 North State street, has been awarded the contract for furnishing and installing all piping connecting the new Capitol building with the central heating plant at Madison, Wis. The consideration is $66,700

Chicago, Ill.—E. J. Benning, of 1236 Belmont avenue, has secured the contract for the plumbing of an 18-family apartment building in his part of the city, and he has a goodly number of smaller jobs on his books. He also has just finished the remodeling of the plumbing system in a large factory.

PACIFIC COAST

San Francisco, Cal.—Specifications for the heating and ventilating work to be installed in the new Denman school have been prepared and contracts will be let within a few days. A vacuum cleaning system will also be installed.

Pasadena, Cal.—Floyd L. Glezen has opened a plumbing establishment at 1319 North Fair Oaks avenue. He would like to receive catalogues of plumbing goods and specialties.

San Francisco, Cal.—Local heating and ventilating engineers are figuring on work that is to be done within a short time on a new grammar school building at San Mateo, Cal.

Los Angeles, Cal.—Thos. H. O'Brien, of 1436 South Main street, has been awarded the contract for the plumbing in the new East Side school building at South Pasadena, Cal. The consideration is $2,376.

Los Angeles, Cal.—The Machinery and Electrical Company, of this city, has secured the contract for the installation of a blower system of heating and ventilating in the new school building which is to be erected in Normandie avenue. The consideration is $1,871.

San Francisco, Cal.—Roth & Co. have secured the contract for the plumbing and kindred work in a three-story building to be erected on Minna street near Eighth. The price for this work will be about $5,700. J. Looney has secured a number of fair sized contracts. One of the latest is for the plumbing in an apartment house at California and Leavenworth streets, the cost to be $1,495.

NEWS FROM RHODE ISLAND

Providence, R. I.—J. E. Fitzpatrick is to do the plumbing and gas fitting in the new residence of A. Downing on Washington avenue. The plans were prepared by Architect Sullivan, of Boston.

Providence, R. I.—Jas. T. Bannon & Sons have been awarded the contract for the plumbing of a three-flat house for William Ward on River avenue, also a three-flat house for Henry M. Wood, on Villa avenue.

Providence, R. I.—C. A. Quirk is putting the finishing touches on a very large contract, the plumbing of twenty three-flat houses and four six-flat houses, which included the gas fitting and hot and cold water supply.

Providence, R. I.—James E. Cuff has succeeded to the business of the firm of Ganghan & Cuff, William H. Ganghan of that firm having recently died. Mr. Cuff has several good contracts on hand, among them one of $1,500 for plumbing in a new private residence at Mystic, Conn., and one of $1,200 for two dwellings on Adelaide avenue. He has also three steam heating contracts.

Providence, R. I.—Graham Bros. have been awarded a nice bunch of contracts for plumbing in private dwellings, among them the residence of R. L. Walker on Blackstone boulevard; that of Dr. J. C. O'Connell on Smith street; Emil Benson on Reynolds avenue; F. S. Harris, at Sea View; W. C. Johnson, on South street; George Kent, at Sea View, and two for J. B. Canning, at Sea View.

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—OF—

Awards of Heating or Plumbing Contracts

(Cut out, fill in and mail promptly)

DOMESTIC ENGINEERING
Chicago

We have been awarded the

Plumbing Contract_____

Heating Contract_____

Kind of Building_____

Amount of Contract_____

Owner's Name_____

Architect's Name _____

Address_____

Our Own Name_____

Address_____

Providence, R. I.—William L. Keller has several large factory contracts, among them the plumbing in the Lundrin building on Dudley street; the plumbing in the Victoria mills; the plumbing for the Baird, North Co., and the plumbing for the George M. Steer Co. He also has been awarded the contract for the plumbing in the private residence of Leo Samuels on Arnold avenue, which includes four bath rooms and all open fixtures.

Providence, R. I.—Appleton & Lee are just completing the plumbing in the new Veazie street school, and they have a fine bunch of contracts on hand, among them the plumbing in the Rhode Island state hospital; plumbing for the Brown & Sharpe Mfg. Co.; plumbing of the Rhode Island School of Designs; plumbing of two school houses for the town of Warwick; plumbing in the Lafayette mills in Woonsocket; plumbing in the Ashton mills in Ashton; plumbing of private residence for the estate of John C. Brown; plumbing of private residence for the estate of Sophia A. Sherman, and the plumbing of the Squantum club house on the river.

H. H. Gove.

GOVERNMENT WORK

Washington, D. C.—Sealed proposals will be received at the office of Supervising Architect James Knox Taylor until 3 o'clock p. m. on December 29, 1909, for the heating apparatus for the U. S. Post Office at Denison, Texas, in accordance with drawings and specification.

Washington, D. C.—Sealed proposals will be received at the office of supervising architect James Knox Taylor until 3 o'clock p. m., December 28, 1909, for the construction (including plumbing, gas piping, heating apparatus, electric conduits and wiring) of the U. S. post office at Athens, Ohio, in accordance with drawings and specifications.

Washington, D. C.—Sealed proposals will be received at the office of Supervising Architect James Knox Taylor until 3 o'clock p. m. January 6, 1910, for the construction of an additional story, remodeling, etc. (including gas piping and electric conduits and wiring), to the U. S. Post Office and Court House at Trenton, New Jersey, in accordance with drawings and specification.

Washington, D. C.—Sealed proposals will be received at the office of Supervising Architect James Knox Taylor until 3 o'clock p. m. on December 29, 1909, and then opened, for the construction (including plumbing, gas piping, heating apparatus, electric conduits and wiring, and tower clock), of an extension, remodeling, etc., to the U. S. Post Office at Beatrice, Neb., in accordance with drawings and specification.

Washington, D. C.—Sealed proposals will be received at the office of Supervising Architect James Knox Taylor until 3 o'clock p. m. January 10, 1910, and then opened, for the construction (including plumbing, gas piping, heating apparatus, electric conduits and wiring), of an extension, remodeling, etc., to the U. S. Post Office at Lima, Ohio, in accordance with drawings and specifications.

Merchant Instincts

The "merchant instinct" which draws young men into business for themselves—and helps established dealers to grow in commercial strength, is a wide-awake trading ability. It is based not alone on salesmanship, but equally upon a keen discernment in selecting a strong line of salable goods, and in being ready to show and explain the things which best fit the demand.

Attractive display of AMERICAN RADIATORS focuses a general advertising impression into tangible sales.

IDEAL Boilers and AMERICAN Radiators register high water mark among live business getting dealers as a salable line of heating goods. The unstinted praise of satisfied customers and the unceasing demand of house-owners for our widely advertised Low Pressure Steam and Hot Water Heating Outfits are warrants of commercial success which every dealer should heed.

AMERICAN RADIATORS & IDEAL BOILERS

A Heating Outfit is More Efficient with NORWALL and SYLPHON SPECIALTIES

AMERICAN RADIATOR COMPANY

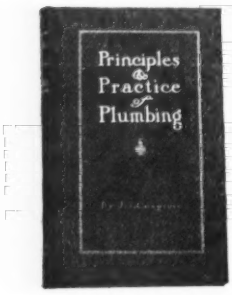
General Offices, 282-286 Michigan Ave., Chicago.

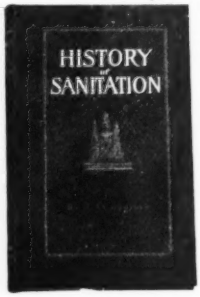
New York	Cincinnati	Cleveland	Atlanta	Brantford, Ont.	Denver
Philadelphia	Boston	Milwaukee	Minneapolis	Seattle	St. Louis
Pittsburg	Buffalo	Indianapolis	Kansas City	Omaha	San Francisco
Washington					

THE OFFICE BOOKSHELF

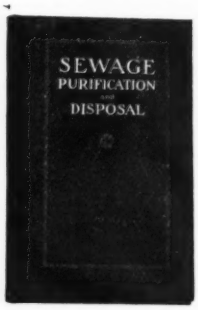
BOOKS WHICH ELEVATE A CALLING.

The importance of a calling can always be foretold by the number and variety of books devoted to its interest. It is only the important and valueless vocations which have no literature of their own. Don't you believe so? Then try to see how many books you can find devoted to common laboring work, such as swinging the pick and shovel in a pipe trench, or carrying bricks and mortar in a hod; and contrast the few with the wealth of literature devoted to the medical and legal professions. Knowledge is but human experience recorded and handed down from generation to generation, for the guidance of those who follow in the same footsteps; and those lines in which authentic





documents have been preserved from time immemorial, it is but reasonable to expect, will far outstrip, both in importance and effectiveness, other lines which cannot boast of traditions and records. A significant fact regarding the more advanced callings, is the rich wealth of historical literature with which they are endowed. To be well posted in one's vocation requires a fair knowledge of the history and traditions of the craft; for, history teaches by example. It tells of the struggles, triumphs and failures of those who have preceded us, thereby pointing out which paths to follow and what to avoid.



The books devoted to plumbing and sanitation have not been so numerous or varied, as those interested in the subject might wish; but recently the literature of these subjects has been permanently enriched by the publication of three volumes: **"Principles and Practice of Plumbing, "History of Sanitation," and "Sewage Purification and Disposal,"** written by J. J. Cosgrove, and appeared first in serial form in "Modern Sanitation," a monthly magazine published by the Standard Sanitary Mfg. Co. It will be interesting to our readers to know that over 2,000 copies of "Principles and Practice of Plumbing" were sold before the books were off the presses, and that in the two years succeeding, the work has been adopted as a text-book in over thirty of the leading colleges and universities in the United States. If the book accomplished no more than this it would entitle it to the greatest respect from the trade in general, for this is the first time in the history of the craft, so far as we are aware, that the business of plumbing has been dignified by a position in the curriculum of the foremost institutions of learning in the land. It is but another example of the fact that no business or calling can really be respected until, it has a representative literature of its own. The two companion books, "History of Sanitation" and "Sewage Purification and Disposal" are lately off the presses, and an equally large and valuable circulation is expected for them. "Principles and Practice of Plumbing" and "Sewage Purified and Disposed" are published to sell at $3.00 per volume. "History of Sanitation" at $1.50 a copy. Orders can be sent to the Publishing Department of the Standard Sanitary Mfg. Co., Pittsburg, Pa.

"Questions and Answers on the Practice and Theory of Sanitary Plumbing." Vol. I. Drainage and Venting. Ninth Edition, revised and enlarged. By R. M. Starbuck. 6¾x4¼ inches, stiff cloth bound, 154 pages. $1.00. Published by R. M. Starbuck & Sons, Hartford, Conn.

No greater emphasis than this book is needed in pointing out that plumbing is a progressive art. To call for nine editions of such a technical book is an indication that the trade grabs at good trade information with avidity. Mr. Starbuck is an unusual man. Added to a wide experience and practical knowledge of the plumbing trade, he possesses a clear and clean style of imparting his knowledge through the written word. This is a remarkable combination and the whole trade is a gainer because it exists in Mr. Starbuck. In the condensed and helpful volume which lies in front of me the author presents his former well-known work in an entirely rewritten and greatly extended form. He is satisfied that the thorough revision has brought the book to the point where modern plumbing practice is conceded to be,—down to the minute. The divisional headings are: Traps; back venting; continuous and circuit venting; soil pipe and drainage; plumbing fixtures and connections; water closets; local venting and ventilation of toilet rooms; requirements and use of plumbing materials; testing the plumbing system; country plumbing; septic tank and sewage siphons; pumps, rams and water siphons; solder, solder joints; theory; siphonage; miscellaneous; rules and tables; 500 examination questions. A copious index makes the wealth of information in the book instantly accessible. The publishers expect to issue Vol. II. dealing with "Hot Water Supply and Circulation," in December. **J. K. A.**

The Building Mechanics' Ready Reference: Plumbers' and Steamfitters' and Tinners' Edition; by H. G. Richey, Superintendent of Construction, United States Public Buildings, first edition. Published by John Wiley & Sons, New York, 7x4¼ inches, 529 pages, with 21 illustrations, limp morocco bound, $1.50 net.

The richness of the material furnished in Mr. Richey's pocket reference book almost discourages the reviewer.

as he cannot possibly indicate to his reader the wealth of knowledge which has here been put together in small compass and for ready reference. The object of the author was not to make a text book or treatise on any particular branch or subject of the trades covered, but to give a ready reference book to the plumbing and steamfitting trades, which would be a valuable assistance to any one connected with either office or installation work. He has brought his material together under the following part headings: Part one includes warm air heating, steam heating, hot water heating, miscellaneous heating data, piping of heating systems, and pipe fittings. This part covers seventy-two pages. Part two treats of data on boilers, miscellaneous information for plumbers and steamfitters, tables of radiation, various computation tables, tables of sizes, strengths, etc., and tables of weight, etc. This department covers 119 pages. Part three treats of hydraulics, data on water, sewers, etc., tin and sheet metal work, sizes, weights, etc., of sheet metal, and covers ninety-three pages. Part four treats of gas piping rules for gasfitting, soil and vent pipes, names, sizes, etc., of soil pipes, various methods and short cuts for plumbers, and rules for plumbing. It covers 105 pages. Part five gives some examples of modern plumbing, modern plumbing specifications, miscellaneous plumbing receipts, mensuration tables, odds and ends for the noon hour, and wage tables. This part is contained in 116 pages. The illustrations are given in careful detail and are very explanatory, while the tables will be found of use for instant reference.

J. K. A.

THE SHOP BOOKSHELF

From the Genuine Bangor Slate Co., Dome Building, Easton, Pa.: A 3½"x6¼" booklet, being the second "dish" of "Roof Salad" published as regularly as the "chef" gets it ready. This number contains twelve pages meaty "roof facts" flavored with a liberal sprinkling of apetizing fiction.

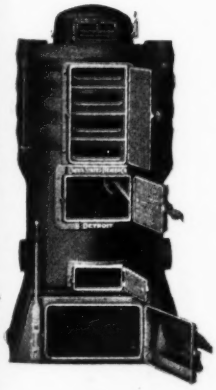
From the Northwestern Expanded Metal Co., 930 Old Colony Building, Chicago: A 3½"x6¼" booklet of twelve pages on "Overcoated Houses." This term is applied to old frame or brick houses which have been refinished on the exterior by plastering cement mortar on "Kno-Burn" expanded metal lath.

From the Vance Boiler Works, Geneva, N. Y.: Catalogue of Vance boilers, 9"x6¼", twenty pages. The booklet contains price list and dimensions of Vance steam and hot water boilers for heating purposes, also specifications of the Vance patent boilers for power. Several facsimile reproductions of testimonial letters from pleased users are shown, followed by a large list of others who have purchased Vance boilers.

Burlington, Iowa.—Russell Sewage Disposal Company, of this city, furnished the sewerless sewage disposal system which was recently installed at the residence of Captain Finley in Warsaw, Ill.—Adv.

CAPITOL BOILERS AND RADIATORS

That Third Nipple Opening



No boiler can be quick acting or economical without perfect internal circulation. The three nipple opening in "Capitol Solar" Boilers provides for this in the only proper manner. This opening connects the topheader and the fire pot but not the middle sections, and allows for ample downward circulation. This insures not only quickest possible action with fuel economy in both steam and hot water boilers but also a steady water line in steam boilers and perfect circulation in hot water boilers.

Capitol Solar Boilers are made in 19 sizes steam and hot water. Catalog and full description on request.

United States Heater Company.

General Offices and Works: Fort St. and Campbell Ave., DETROIT, MICH.

BRANCHES:		SALES AGENCIES:	
NEW YORK	129 Worth St.	MINNEAPOLIS, MINN.,	Plumbing & S. F. Supplies Co.
CHICAGO	34 Dearborn St.	ST. LOUIS, MO.,	L. M. Rumsey Manufacturing Co.
OMAHA	916 Farnam St.	DENVER, COLO.,	Kellogg & Stokes Stove Co.
DETROIT	139 Jefferson Ave.	DULUTH, MINN.,	Duluth Plumbing Supplies Co.
KANSAS CITY OFFICE	413 N. Y. Life Bldg		

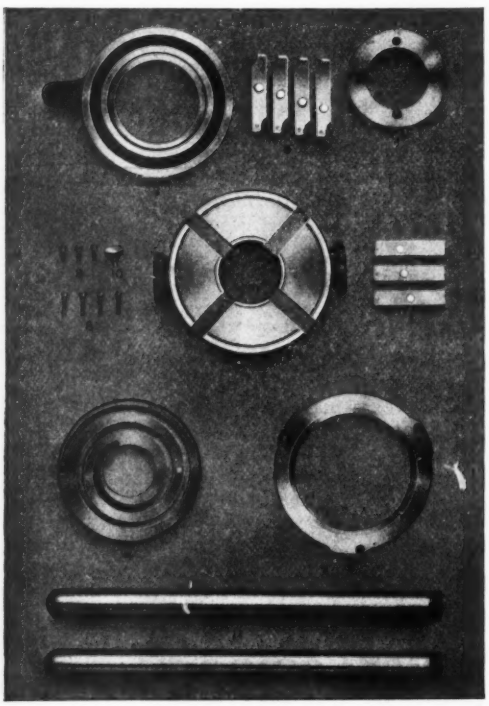
WITH THE MAKERS

A "Handy" Die Stock

The new tool here shown is only 18 inches from end to end of the handles. Among the claims made for it by the manufacturers, the Handy Mfg. Co., of 71 W Broadway, New York, are that it is the lightest, smallest,

The No. 1 "Handy" die stock.

most compact tool made for threading pipe. One set of dies will thread ¼, ⅜, ½ and ¾-inch pipe. The die stock is furnished with geometrical dies, that is, dies with flat instead of curved teeth, thereby giving the dies a maximum of strength at the cutting point as well as



Extra parts of "Handy" die stocks.

a maximum of relief in back of the same. This absolutely prevents hogging under any circumstances. The manufacturers are sending this diestock out on fourteen days' trial, particulars of which, together with further information about the diestock may be had by writing direct, mentioning this article.

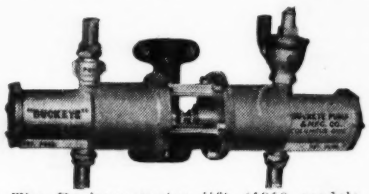
Helps the Plumber Sell Sanitary Slate.

One of the more recent and immediately successful developments of the advertising work of the large manufacturing concerns is the "trade help" department—a plan by which the manufacturer brings all the resources of his amply equipped and experienced advertising department to bear on local trade for the benefit of the small dealer. In the plumbing field a good example of this is found in the substantially helpful work of the Penna Structural Slate Co., Dome Building, Easton, Penna. Their trade help system for local plumbers is designed to develop business in old buildings without necessarily waiting for new ones to go up. This is the right idea, because by this plan business can be developed in any town, regardless of whether building is being done or not. Part of the plan so far worked out by this company consists of a series of very attractive and convincing folders, each designed to cover a particular class of business firms. For instance, folder "B" is supplied to the local plumber with his name printed thereon. It forcibly points out the actual, tangible returns that have been and that logically might be expected to result from an installation of the sanitary slate toilettes. On one page of this folder is a facsimile reproduction of an enthusiastic letter written by a restaurant keeper in which he states that his business has increased at least 20 per cent, due directly to the installation of these fixtures in his place. Actual figures are given in another part of the folder to show the cafe or restaurant keeper into whose hands it is placed just how a suitable installation of this kind will pay for itself in a short time in actual, traceable business that it will bring him. This circular hits the nail on the head. It touches the "impelling motives," as the psychologists would say, by clearly showing that such an investment will pay a handsome profit to the owner.

After digesting a few such pertinent facts, almost any owner of such a business is ready to figure with the plumber on an installation. Plumbers should be quick to take advantage of such help by getting into touch with this firm, mentioning this article when they write.

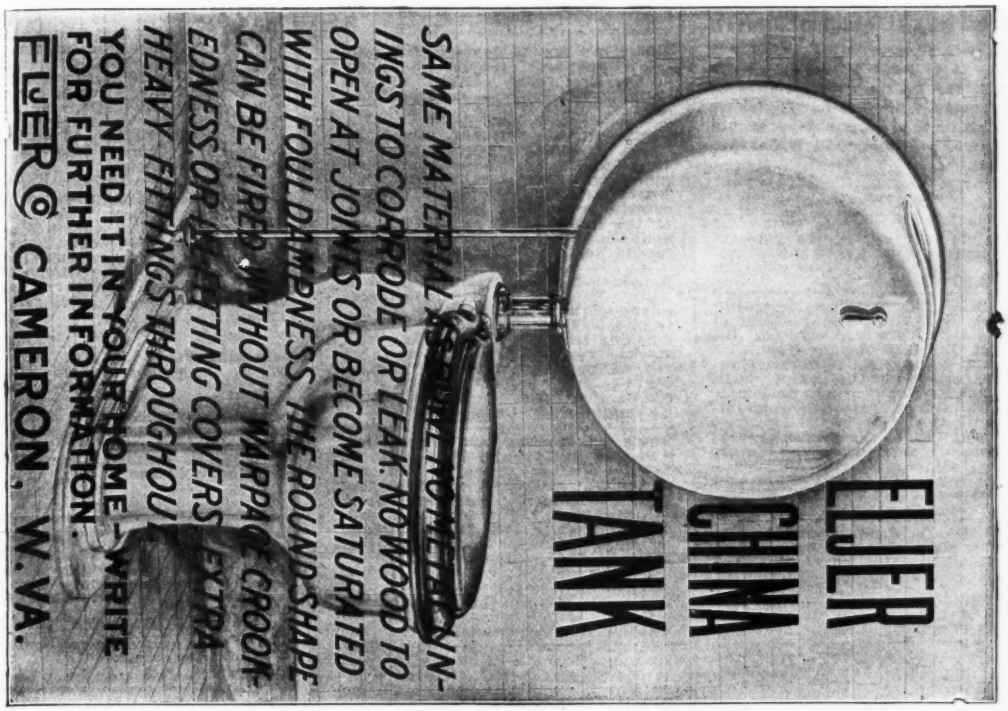
A Simple Water Lift Pump.

The 1910 model of the "Buckeye" water lift made by The Buckeye Pump and Manufacturing Co., of Columbus, Ohio, is built on an entirely new principle which makes it impossible to stick or stop on center according



The Buckeye water lift (1910 model).

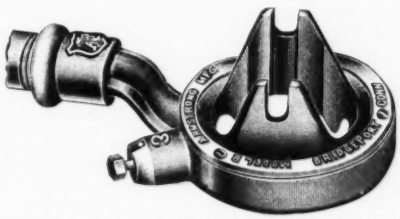
to the claims of the maker. This lift contains but seven packing or cup leathers and, it is stated, that it has less than half the parts that go to make up other lifts on the market heretofore. The best quaality of bronze is used in the construction of this lift. The connections on both power and suction ends are straight up and down, which


ELJER
CHINA
TANK
SAME MATERIAL
INGS TO CORRODE OR LEAK. NO WOOD TO
OPEN AT JOINTS OR BECOME SATURATED
WITH FOUL DAMPNESS. THE ROUND SHAPE
CAN BE FIRED WITHOUT WARPAGE OR CRACK-
EDNESS OR MELTING COVERS
HEAVY FITTINGS THROUGHOU
YOU NEED IT IN YOUR HOME—WRITE
FOR FURTHER INFORMATION.
ELJER CAMERON, W. VA.

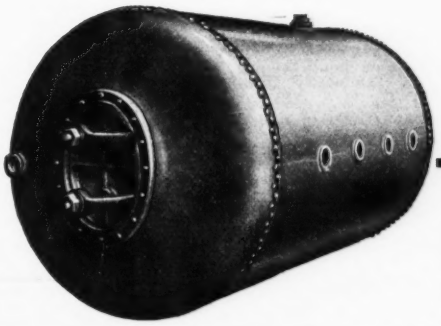
effect a saving of time in installing. Bracket separate from pump makes it easy for one man to put it in place. The Buckeye is entirely automatic and noiseless. Can be set up either right or left hand. The manufacturers will gladly give full details to all who write mentioning this article.

A New and Useful Tool.

The new Model "B" ratchet attachment shown herewith was recently put on the market by the Armstrong Mfg. Co., of Bridgeport, Conn. With this ratchet attachment applied to a genuine Armstrong stock an apprentice boy can cut pipe with ease, it is claimed. They are used by water and gas companies largely. It is not necessary to buy an extra stock when this attachment can be applied to stocks already in use. This attachment is now made to fit the genuine Armstrong stocks, viz., No. 2, 2½, 3 and the No. 1, 6 and 7 will be ready to market soon. The manufacturers will gladly give any information desired in regard to this new tool to all who write, mentioning this article.



Armstrong's new model "B" ratchet attachment.



BOILERS (LARGE AND SMALL)

This 300-gallon Copper Pressure Boiler was built by us for the new Boston Opera House. Shell, 3-16 inches thick; heads, ¼ inches thick; with 17 tappings. Seam brazed and hard hammered.

We solicit special boiler work. We make the best of Cistern and Riveted Pressure Boilers of all sizes and pressures. Our EAGLE Copper Range Boiler is tested to 200 pounds pressure. Guaranteed against collapse and leakage and to stand working pressure of 100 pounds.

For Sale by all Jobbers of Plumbing Supplies

Gerstein Bros. & Cooper

Coppersmiths. 31 W. First St., South Boston, Mass.

CLASSIFIED ADVERTISEMENTS

The rate of advertising under this heading is 25 cents a line, or 5 cents a word, for an insertion, remittance to be made with order. To insure insertion in this column copy should be received not later than Wednesday morning.

Help Wanted.

WANTED—A man to do estimating on plumbing and heating work in a jobbing house in one of the central states. Address 179, "Domestic Engineering," Chicago.

WANTED—Two first-class representatives by a large manufacturer of boilers and radiators, one for the state of Ohio and one for New York City and contingent territory. Thorough experience in the heating business, both as Engineer and Salesman, required, also a personal acquaintance with the trade in the localities mentioned. State experience, present employment, references and salary desired. Address No. 174, "Domestic Engineering," Chicago.

Situations Wanted.

WANTED—To correspond with any one in need of a plumber in west or middle west. Address No. 182, "Domestic Engineering," Chicago.

WANTED—Position as heating engineer with contractor, or as salesman with manufacturer or dealer in heating line. Thoroughly acquainted with trade. Address No. 183, "Domestic Engineering," 150 Nassau St., New York.

For Sale.

FOR SALE—Plumbing, heating and tinning business in a city of 50,000 in Illinois. Address No. 180, "Domestic Engineering," Chicago.

SACRIFICE—Plumbing, heating and tinning business in fastest growing village on Long Island. Address No. 181, "Domestic Engineering," Chicago.

FOR SALE—Up-to-date plumbing shop in town of 2,500, seventy miles from Pittsburg. Must sell quick; terms upon application. Address No. 178, "Domestic Engineering," Chicago.

Government Proposals.

TREASURY DEPARTMENT, Office of the Supervising Architect, Washington, D. C., November 17, 1909.—SEALED PROPOSALS will be received at this office until 3 o'clock p. m. on the 29th day of December, 1909, and then opened, for the plumbing and marble finish, etc., of toilet rooms for the U. S. Post Office at Denison, Texas, in accordance with drawings and specifications, copies of which may be had at this office or at the office of the superintendent of construction, at the discretion of the Supervising Architect.

JAMES KNOX TAYLOR,
Supervising Architect.

Miscellaneous.

WANTED—TO BUY A PLUMBING SHOP in a good town within 150 miles of Chicago. Address 164, "Domestic Engineering," Chicago.

Plumbing Schools.

LEARN PLUMBING on new buildings in four months. Tools furnished. Master Plumbers' Trade School, 3659 Finney Ave., St. Louis, Mo.

Books.

Salesmen's List of Jobbers of Plumbing Supplies. Bound in cloth; pocket size. Sent postpaid for one dollar. "Domestic Engineering," Chicago.

Sanitation in the Modern Home. By Jno. K. Allen. An invaluable guide to the architect, plumber, heating engineer and house owner, telling just what is necessary to make a house completely sanitary from the subsoil to the roof. 8x5¼ inches; 272 pp.; bound in cloth; postpaid, $2.00. "Domestic Engineering," Chicago.

Roughing-in House Drains. Edited by Jno. K. Allen. A complete guide to the work of roughing-in plumbing, from the digging of the sewer to the finishing length of the soil and vent stacks, giving each step to be taken and telling how and why it is done. 6¼x4¼ inches; 184 pp.; bound in boards. Postpaid, 50 cents. "Domestic Engineering," Chicago.

Notes on Heating and Ventilation. Second edition. By Prof. John R. Allen. Written primarily for the steamfitter and designer of heating systems. Reduced to as brief a form as possible, so that readers can readily find notes or data desired. Bound in cloth, 6¾x4¾ inches; 272 pp.; postpaid, $2.00. "Domestic Engineering," Chicago.

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Sanitary Sewerage of Buildings. By Thos. S. Ainge. An authoritative statement of the principles and practice of sewering buildings, including the design and construction of plumbing systems, disposal of sewage in unsewered localities, etc.; 8x5 inches; bound in cloth; 209 pp.; postpaid, $1.50. "Domestic Engineering," Chicago.

Dean's Steamfitter's Computation Book. Contains figured cubical contents of rooms of different sizes and ceiling heights; also tables showing radiation necessary at various rates per square foot of glass surface, wall surface, or cubic feet; also square feet of glass or wall in surfaces of various dimensions; also cost of selling price of radiators at various market prices. These tables save fitters thousands of arithmetical calculations, giving the answers ready to hand. Leather bound; 7¾x5 inches; 90 pp.; postage prepaid, $2.50. "Domestic Engineering," Chicago.

Dean's System of Greenhouse Heating by Steam or Hot Water. Directions for obtaining different temperatures; tables of radiation necessary per square foot of glass; tables giving glass surface; sizes of flow and return pipes; explanations so simple all fitters may understand. Cloth bound, 7¾x5½ inches; 46 pp.; postage prepaid, $2.00. "Domestic Engineering," Chicago.

Tables for Calculating Sizes of Steam Pipes. By Isaac Chaimovitsch. These tables furnish a method of determining sizes of steam pipes for low pressure heating without laborious mathematical calculations; bound in cloth; 4½x6¾ in.; 47 pp.; postpaid, $2.00. "Domestic Engineering," Chicago.

Swimming Pools. By. Jno. K. Allen. Their construction; cold and hot water supply; various methods of heating the water; directions as to selecting correct sizes of heaters. A practical guide to the subject. Over thirty illustrations; 6½x4¾ inches. Postpaid, 50 cents. "Domestic Engineering," Chicago.

AN ORDER FROM MEXICO

to an advertiser; a highly satisfactory agent secured by another; numerous requests for prices received by several; these five wires show the opportunity for trade extension in Latin America secured through

INGENIERIA

the only Spanish engineering journal printed in the U. S. Copy free on request.

209-213 N. Jefferson St., Chicago

Rack Labels

PRACTICAL FOR PLUMBERS

Easily applied to shelves, racks or drawers. Shows what you want at a glance; no more guessing or delayed customers. Not only tells the article, but illustrates it. Systematizes and facilitates stock taking. It's a money saver! Printed in plain, readable type.

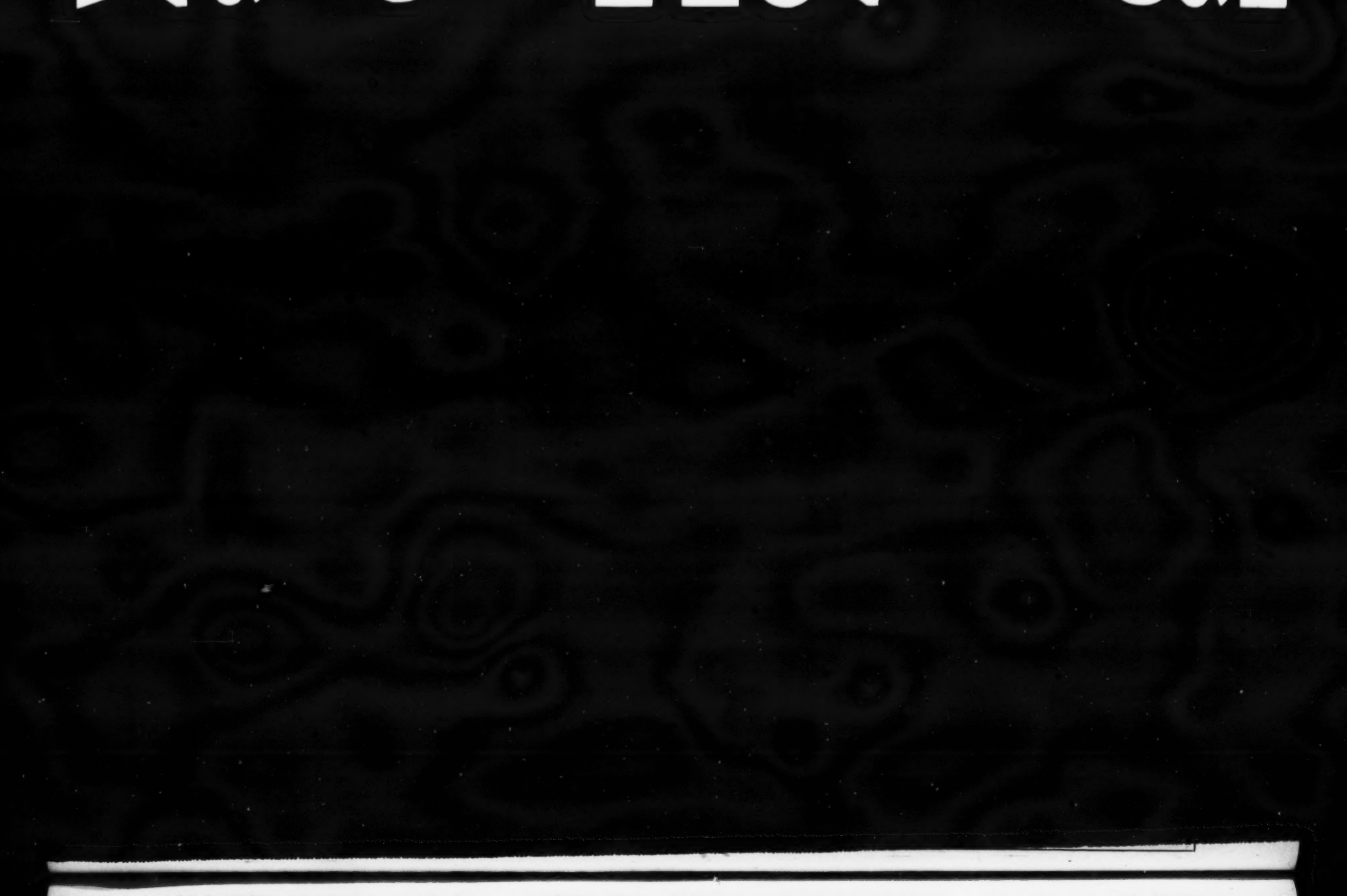
Write for Prices.

MERCANTILE LABEL CO.
NASHUA, N. H.

Adjustable Radiator Foot Rest

The time saved on each job pays for them—can be used for bath tubs and other fixtures

Patent Dec. 8, 1908

The Jennison Company, Fitchburg, Mass.
Sold by Jobbers

F. E. CUDELL'S
Sewer Gas and **TRAP** Backwater
(Patented)
For Wash Bowls, Sinks, Bath and Wash Tubs
Put into the White House by the United States Government
For Venting use Vent Trap. CLEVELAND, O.